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PROCEEDINGS

AND

COLLECTIONS

OF THE

WYOMING HISTORICAL AND GEOLOGICAL SOCIETY,



VOL. II PART 2.

WILKES-BARRÉ, PA.
PRINTED FOR THE SOCIETY.
1886.



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AND

COLLECTIONS

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WYOMING HISTORICAL AND GEOLOGICAL SOCIETY.



— — — — —
VOL. II.
— — — — —

WILKES-BARRÉ, PA.
PRINTED FOR THE SOCIETY.
1886.

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PROCEEDINGS AND COLLECTIONS
—OF THE—
Wyoming Historical and Geological Society.

Vol. II.

WILKES-BARRÉ, PA.

Part 2.

PROCEEDINGS.

Quarterly Meeting, May 9th, 1884.

Present, nineteen members.

President Dana in the chair.

Contributions to library and cabinets were acknowledged.

Correspondence was read: New London County Historical Society relative to the Ross Memorial; Elbridge McConkey, resident clerk, explaining the cause of delay in forwarding the state publications under the provisions of the Act of 1883; Prof. Angelo Heilprin, concerning certain fossil shell-forms found in the measures of this region; Dilton Yarrington, recounting many interesting personal reminiscences of Wilkes-Barré.

The amendment to the By-Laws, relative to election of members, proposed at last meeting, was adopted finally.

The following new by-law, recommended by the Trustees, was introduced and passed first reading: "All moneys received on account of life membership shall be securely invested by the Trustees in the name of the Society, and shall form a fund to be called the Life Membership Fund, the interest only of which shall be available for the uses of the Society. The Trustees shall pay to the Treasurer,

annually, the accrued interest of said fund, or add the same to the fund, as they shall deem for the best interests of the Society."

Mr. C. A. Ashburner, of the Second Geological Survey of Pennsylvania, addressed the meeting on the present state of the work of the Survey in the Northern Anthracite Field, or Wyoming Basin; illustrating his remarks by means of the new maps of the region, prepared by Mr. Frank A. Hill. Mr. Hill followed with remarks in explanation of the maps. Messrs. Ashburner and Hill received a vote of thanks for their interesting and instructive addresses.

Quarterly Meeting, September 12th, 1884.

Present, twelve members.

President Dana in the chair.

Contributions to the library and cabinets were formally acknowledged.

George H. Butler, L. C. Dart, and Fred. Mercur were elected resident members. Pierce Butler, of Carbondale, and Col. W. L. Stone, of Jersey City, N. J., were elected corresponding members. The names of F. V. Rockafellow and J. H. Swoyer were transferred from the resident to the life membership list.

The committee on certificate of membership submitted as their report, a design prepared by Mr. George Leach, Jr.; the design was adopted and the committee discharged. The Meteorologist made report for the preceding three months which was received and ordered filed. The by-law introduced at last meeting relative to moneys received on account of life membership, etc., was, on motion, adopted finally.

Sheldon Reynolds, Esq., read a paper on "The Rev. Bernard Page, the First Episcopal Minister of Wyoming."*

* *Infra.*

Rev. H. E. Hayden read a paper on "Some Indian Medals of George I."* Messrs. Reynolds and Hayden received a vote of thanks, and their papers were referred to the Publishing Committee.

Quarterly Meeting, December 12, 1884.

Present, twenty members.

President Dana in the chair.

Contributions to the library and cabinets were acknowledged.

Correspondence read: Prof. J. T. Rothrock on the recent discovery in Luzerne county, of the lizard *Amblystoma punctata*, properly belonging to more southern latitudes; C. A. Ashburner, of the Second Geological Survey of Pennsylvania, relative to the mine maps of the Northern Coal Fields, lately issued by the Survey; Dr. D. G. Brinton, in regard to the establishment of a department of Ethnology and Archæology in the Academy of Natural Sciences, Philadelphia.

The name of W. L. Conyngham was transferred from the resident to the life membership list.

Geo. B. Kulp, Esq., read a biographical sketch of Hon. Stewart Pearce, deceased.* Mr. Kulp received a vote of thanks, and the paper was referred to the Publishing Committee.

The Secretary read a paper, prepared by Prof. E. W. Clappole, on "Some Fossil Shells from the Lower Carboniferous of Wilkes-Barré."* The thanks of the Society were voted to Prof. Clappole; the paper was referred to the Publishing Committee, with instructions to communicate with the Second Geological Survey, concerning the classification

* *Infra.*

of the remaining fossil shells from the same horizon, in the possession of the Society, with the purpose of publishing the same in connection with Prof. Claypole's paper.

The Meteorologist read his report for the preceding three months, which was received and ordered filed.

The Society adopted a resolution recommending to the members and to the public the Historical Register; Notes and Queries of the Interior of Pennsylvania, by Dr. W. H. Egle, as a magazine representing the interests of this portion of the state, and deserving the support of students of history.

Annual Meeting, February 11th, 1885.

The meeting convened at 12 o'clock M.

President Dana in the chair.

On motion, adjourned to meet on the same evening at 8 o'clock.

The adjourned meeting was held pursuant to the adjournment at 8 P. M.

There were present, fifteen members.

President Dana in the chair.

The Society acknowledged a large number of contributions. On motion, a vote of thanks was extended to the donors.

The following officers were elected for the ensuing year :

TRUSTEES :

DR. CHAS. F. INGHAM,	EDWARD P. DARLING,
RALPH D. LACOE,	SHELDON REYNOLDS,
HARRISON WRIGHT.	

PRESIDENT :

HON. EDMUND L. DANA.

VICE PRESIDENTS :

DR. C. F. INGHAM,	REV. H. L. JONES,
CAPT. CALVIN PARSONS,	HON. E. B. COXE.

RECORDING SECRETARY :
HARRISON WRIGHT.

CORRESPONDING SECRETARY :
SHELDON REYNOLDS.

TREASURER :
ANDREW F. DERR.

LIBRARIAN :
ANDREW H. McCLINTOCK.

ASSISTANT LIBRARIAN :
G. MORTIMER LEWIS.

CURATORS :

Archæology, SHELDON REYNOLDS.
Numismatics, H. E. HAYDEN.
Mineralogy, HARRISON WRIGHT.
Palæontology, R. D. LACOE.
Conchology, C. F. INGHAM.
Meteorologist, E. L. DANA.
Historiographer, GEORGE B. KULP.

The annual reports of the Cabinet Committee and Treasurer were read and referred to the Publishing Committee.

The Historiographer presented obituary notices of Henry Guyot, LL. D., late Professor of Geology in Princeton College and honorary member of the Society ; also, Major D. S. Bennet and Thompson Derr, late resident members.

The Meteorologist submitted his report for the months of December, 1884, and January, 1885, together with a record of the variations of the height of the river by daily observations for thirteen months past, prepared by Mr. H. G. Merrill.

Capt. John D. Colvin was elected a resident member.

Wm. Poillon, M. A., Secretary of the American Numismatic and Archæological Society, and John G. Freeze, Esq., Columbia county, were elected corresponding members.

Calvin Parsons, Esq., gave a sketch of the early settlement of a portion of Wilkes-Barré township. Hon. C. A. Miner was invited to prepare a paper on the Old Mills of Wyoming Valley.

The President called the attention of the Society to the approaching one hundredth anniversary of the erection of Luzerne county, September 25, 1886, and suggested the propriety of some observance of the event. The subject was referred to the Trustees, with the request that they report a plan for celebration.

Quarterly Meeting, May 8th, 1885.

Present, twenty-five members.

President Dana in the chair.

On motion, the regular order of business was dispensed with.

The President announced, in fitting words, the death of Dr. Harrison Wright, late the Recording Secretary of the Society. The Committee on Resolutions, previously appointed, presented through its chairman, Mr. C. Ben Johnson, resolutions expressing the esteem in which our late fellow member was held, and the high appreciation of his worth and usefulness as an officer of this Society.

The Historiographer read a carefully prepared genealogical and biographical essay of the life and character of the late Harrison Wright.

The Corresponding Secretary presented a memorial notice transmitted by the Historical Society of Pennsylvania, being an extract of the minutes of that Society, relative to the death of Harrison Wright.

David M. Jones, Esq., read a poem prepared for the occasion.

Sheldon Reynolds read a review of the literary work of Dr. Harrison Wright.

On motion, the resolutions and the several papers were referred to the Publishing Committee, with authority to incorporate such other matter relative to the subject as the committee should deem desirable, and publish the same as a memorial of Harrison Wright.*

The Secretary was instructed to communicate to the Historical Society of Pennsylvania, the grateful appreciation of this Society of the interest and sympathy expressed in the memorial notice above mentioned.

J. Ridgway Wright, W. C. Price, Col. R. Bruce Ricketts and Mrs. A. D. Reynolds were elected resident members.

Quarterly Meeting, September 11th, 1885.

There were present, twenty-four members.

President Dana in the chair.

Contributions to both library and cabinets were read and acknowledged by a vote of thanks to the several donors.

Correspondence was read as follows: Spencer F. Baird, Secretary Smithsonian Institution, relative to the presentation to the Society of *The Diplomatic Review of England; Magazine of Western History*, asking for the reports of the successive meetings of the Society for publication; Prof. J. P. Lesley, of the Second Geological Survey of Pennsylvania concerning the suite of fossil shells of the anthracite coal measures sent by the Society, and inclosing a partial list of classification; Hon. J. A. Sweeney, in relation to the law regulating the distribution of Pennsylvania State Publications; Dr. W. H. Egle, concerning Vol. II, Part 1, of the Society publications; Long Island Historical Society, in reference to exchange of publications.

**Proceedings of the meeting of May 8th, will appear in a future publication.*

The following were elected resident members: Hon. C. D. Foster, Hon. M. B. Williams, John S. Harding, J. W. Raeder, H. Baker Hillman.

Prof. Ray Greene Huling, Fitchburg, Mass., F. D. Stone, Librarian Historical Society of Pennsylvania, were elected corresponding members.

The Meteorologist made report for June, July and August, which was received and filed.

E. L. Dana, chairman of committee, to whom was referred the question of observance of the hundredth anniversary of the erection of Luzerne county, submitted a report, which, after discussion, was received and filed.

On motion, the President was authorized to appoint a committee whose duty should be to make the arrangements necessary to put into effect the plans and suggestions embodied in the above report; the President to be chairman of such committee.

J. Ridgway Wright was nominated, upon the recommendation of the Trustees, and duly elected to the office of Recording Secretary.

Calvin Parsons, Esq., read a paper on the early settlement of a portion of Wilkes-Barré township. Mr. Parsons received the thanks of the Society, and the paper was referred to the Publishing Committee.

Quarterly Meeting, December 11, 1885.

There were present, twenty members.

President Dana in the chair.

Contributions to both library and cabinets were read and acknowledged by a vote of thanks of the Society to the several donors.

Correspondence was read as follows: Hon. E. B. Coxe, relating to presentation of history of Wyoming; also, a letter from Isaac A. Chapman, pointing out errors in Johnson's and

Warner's large maps of Pennsylvania; F. D. Stone, Librarian of Pennsylvania Historical Society, accepting election as corresponding member; Ray Greene Huling as above; Prof. John C. Branner, relating to the glaciation of the Wyoming and Lackawanna valleys, also, returning thanks for publications of Society; S. B. Hoyt, relating to manuscript of Rev. Ard. Hoyt; W. H. Van der Smissan, Corresponding Secretary Canadian Institute, desiring an exchange of publications.

J. W. Raeder was elected resident, and James Slocum, of Brownsville, corresponding members, respectively.

The Meteorologist made his report for September, October, and November, 1885, which was received and filed; he also reported the rainfall for September, 1883,-'84,-'85; October, 1883,-'84,-'85; also, November, 1883,-'84,-'85.

Mr. A. H. McClintock presented a short biographical sketch of the Chevalier de la Luzerne, at the same time he presented to the Society, in the name of Hon. E. B. Coxe, a portrait of the Chevalier de la Luzerne.

Mr. W. P. Ryman read a paper on the early settlement of Dallas township; only half of the original paper being read, Mr. Ryman was requested to continue the reading at the next meeting. The thanks of the Society were voted to Messrs. McClintock and Ryman, and their several papers were referred to the Publishing Committee.

Annual Meeting, February 11th, 1886.

The meeting convened at 11 o'clock A. M.

Present, sixteen members.

President Dana in the chair.

The Society proceeded to the election of officers for the ensuing year. The result of the ballot showed the following gentlemen had received all of votes cast and were, therefore, declared elected:

TRUSTEES :

DR. C. F. INGHAM, EDWARD P. DARLING,
 RALPH D. LACOE, SHELDON REYNOLDS,
 EDWARD WELLES.

PRESIDENT :

HON. EDMUND L. DANA.

VICE PRESIDENTS :

DR. C. F. INGHAM, REV. H. L. JONES,
 CAPT. CALVIN PARSONS, HON. ECKLEY B. COXE.

RECORDING SECRETARY :

J. RIDGWAY WRIGHT.

CORRESPONDING SECRETARY AND LIBRARIAN :

SHELDON REYNOLDS.

ASSISTANT LIBRARIAN :

G. MORTIMER LEWIS

TREASURER :

A. H. McCLINTOCK.

CURATORS :

Conchology and Mineralogy, DR. C. F. INGHAM.
 Archæology, SHELDON REYNOLDS.
 Palæontology, R. D. LACOE.
 Numismatics REV. H. E. HAYDEN.
 Meteorologist, HON. E. L. DANA.
 Historiographer, GEO. B. KULP.

On motion, the thanks of the Society were tendered to Hon. E. B. Coxe for a picture of the ruins of the Abbey of Luzerne.

George Kelsey Powell, Charles J. Long, Edward E. Hoyt, B. M. Espy, Edward Chahoon, Joshua L. Miner, Joshua L. Welter, Geo. H. Fisher, F. W. Wheaton, G. Adolph Baur, H. H. Welles, Jr., Mrs. Elizabeth R. Ricketts, Hendrick W. Search, Geo. W. Kirkendall, C. A. Belin, Robert D. Evans, Isaac Long, S. J. Whiteman, R. C. Mitchell, W. Drake Loomis, were elected resident members.

On motion, a committee of three, Col. G. M. Reynolds, H. H. Harvey, and J. Ridgway Wright, was appointed to confer with the heirs of the Lee estate and to secure, if possible, the two engravings, one of John Wilkes and one of Isaac Barré.

On motion, Samuel H. Lynch, Esq., of this city, was requested to prepare a paper on his recollections of the old Wilkes-Barré Academy.

On motion, Mr. R. D. Evans was requested to furnish the Society with a copy of a paper prepared by him, showing the business progress in Wilkes-Barré.

On motion, adjourned to 8 o'clock P. M.

ADJOURNED MEETING.

There were present, twenty-three members.

President Dana in the chair.

Correspondence was read: Department of Interior U. S., acknowledging receipt of two hundred volumes of Congressional Globe and Record, to be used in supplying deficiencies in certain libraries; U. S. National Museum, relative to exchange of publications; Prof. J. P. Lesley, in reference to the publication, by the Society, of the report and classification of the fossil-shells of this region by Prof Heilprin, and kindly offering to send the electrotype plates of the fossils; W. A. Thomas, Kingston, Mass., relative to archæological collections; James Slocum, of Brownsville, accepting election as corresponding member.

The Historiographer announced the deaths of Dr. Harrison Wright, J. L. Richardson, Frank Turner, William Frothingham and Thomas Broderick. The papers were received and referred to the Publishing Committee, and a vote of thanks of the Society was tendered to Mr. Kulp.

The report of the Cabinet Committee was read. On motion, it was received and referred to the Publishing Committee. It comprised the following departments:

Library—A. H. McCLINTOCK, Librarian.

Archæology—SHELDON REYNOLDS, Curator.

Numismatics—H. E. HAYDEN, Curator.

Palæontology—R. D. LACOE, Curator.

Conchology—Dr. C. F. INGHAM, Curator.

The reports of the Meteorologist and of the Treasurer were received and referred to the Publishing Committee.

Mr. W. P. Ryman continued the reading of his paper on the early settlement of Dallas township. On motion, the thanks of the Society were tendered to Mr. Ryman.

The paper on "The Sullivan Road," by Hon. E. L. Dana, was laid over until the next meeting.

REPORTS OF THE TREASURER.

The Treasurer in Account with Wyoming Historical and Geological Society, for the Year Ending February 11, 1885.

<i>Dr.</i>	<i>Cr.</i>
To cash from last Treas.,	By stationery, \$ 18 23
Sheldon Reynolds, . \$404 75	" postage, 12 80
" annual dues and entrance fees, 360 00	" books and magazines, 7 00
" rent of rooms (sublett'g) 165 00	" printing and binding books and magazines, 128 20
" sale of publications . . 7 25	" freight and express . . 1 80
" life membership fee of F. V. Rockafellow . . 100 00	" gas and fuel 18 75
" life membership fee of J. H. Swoyer 100 00	" janitor's wages 6 00
" life membership fee of W. L. Conyngham, . 100 00	" coins purchased 14 12
	" sundries 15 00
	" insurance 36 00
	" heliotype certificates . 59 20
	" contrib'ns to life membership fund transfer'd to savings acct. . . . 300 00
	" balance 619 90
\$1237 00	\$1237 00

Respectfully submitted,

ANDREW F. DERR, Treas.

The Treasurer in Account with Wyoming Historical and Geological Society, for the Year Ending February 11, 1886.

<i>Dr.</i>	<i>Cr.</i>
To bal. from last report . \$619 90	By rent to April 1, 1885, . \$450 00
" annual dues and entrance fees 385 00	" postage 12 80
" rent of rooms (sublett'g) 354 20	" books and magazines 7 00
" sale of publications 7 90	" printing and binding publications, etc., 158 50
	" gas and fuel 14 90
	" repairs to rooms of Soc. 11 52
	" designing and engraving 19 00
	" coins for Numismatic cabinets 25 00
	" com. paid collectors 6 50
	" insurance 1885-'86 36 00
	" sundries 3 35
	" balance 522 43
\$1267 00	\$1267 00

Respectfully submitted,

ANDREW F. DERR, Treas.

CABINET COMMITTEE'S REPORT.—1884-'85.

LIBRARY.

The Librarian of the Society reports that since the annual meeting of February, 1884, the increase of the Library has been as follows:

Bound volumes,	352
Pamphlets,	874
Manuscripts,	5
Maps,	5
Total,	1236

There have also been a number of odd newspapers added, which will materially assist in completing the newspaper

files of the Society. The work has been mainly directed towards a complete overhauling of the books, their re-arrangement and labeling, introductory to the preparation of a card catalogue. The needs of the library are:

1. Enlarged shelf room; the present space is filled to overflowing.

2. More pamphlet cases; the temporary preservation of pamphlets—and they often are of more value than many bound volumes—is only possible through the medium of pamphlet cases.

3. More active effort and personal labor on the part of the members of the Society. The library has grown, and still increases so rapidly that the work of a few members at irregular intervals is insufficient to cope with the accumulated mass of material, and as a library of such proportions can only be generally consulted when properly catalogued, it is of urgent necessity that the members of the Society give their personal aid in the endeavor to make our valuable collection of books of practical usefulness for study, reference, or recreation.

Respectfully submitted,

ANDREW H. McCLINTOCK, Librarian.

The Librarian of the Society reports that since the annual meeting of February, 1885, the additions to the library have been as follows:

Bound volumes,	497
Pamphlets,	264
Sheets (broadsides),	13
Maps,	1
Manuscripts,	3
	<hr/>
Total additions,	778

The library has been entirely overhauled since our last report, and the books have been classified on the shelves according to subjects, so that the mass of material which we have been accumulating is now in condition for ready reference, and though we have not been able to perfect our arrangements for a complete card catalogue, the library is so accessible and our stay in the present rooms so limited, it has been thought best to defer the cataloguing until we shall have moved into the Osterhout Library Building. The duplicates, both bound volumes and pamphlets, have been arranged by themselves in a separate room and have been carefully catalogued, with a view of using them for the purpose of exchanging with other societies. The proprietors of the *Record*, since July, 1883, have presented twice a year, complete files of the daily and weekly editions of their paper. These come to us carefully arranged and unfolded, in condition to be immediately handed to the binder. The proprietors of the *News Dealer* and the proprietor of the *Waechter* and *Samstag Abend* also send us, regularly, copies of their papers. We think it proper in this report to express our appreciation of these attentions. The records of the daily occurrences in this region are thus preserved for future generations, and these papers will be of inestimable value to the future historians of our valley. It is to be hoped that the other daily and weekly papers may also be secured in the same manner.

We have begun a series of exchanges with other societies and are endeavoring by this means to complete our sets of their publications.

The library has been open and warmed during the day for the past two months, and it is our purpose to continue having the rooms open; this is becoming more necessary as the library is in constant use by members and others, and the number of persons who refer to our books and records is increasing steadily.

The work which has been done during the past year has been of a permanent nature, and the arrangement is now such that the labor of the future will be more apparent than our efforts in the past. In this connection it is proper to state that Mr. Sheldon Reynolds has been most indefatigable in his attention to the needs of the library, and the Society is indebted to him for the greater part of the improvements here recited.

Respectfully submitted,

ANDREW H. McCLINTOCK, Librarian.

ARCHÆOLOGY.

It has been the purpose of the management to make this department illustrative of the Archæology of the upper Susquehanna valley; to gather all that is possible of the remains of the aborigines which tend to elucidate their history and manner of life; that the objects thus collected and properly classified shall become a source of knowledge where the student may find the means of ascertaining the social condition of the tribes who have left no other record of their existence than is contained in these remains. A collection which exemplifies this subject to a reasonable degree of thoroughness by means of objects obtained within a comparatively limited region, defined by such natural boundaries as would probably mark the territory of the several tribes or nations, would be of much more value and convey more certain intelligence than a larger collection of objects drawn from widely separated localities; one might engage the attention of the casual observer by a more numerous display of objects, interesting in themselves, but

bearing only a slight relation the one to the other, and very little to any particular tribe of aborigines; the other would appeal to the quick intelligence of the student; the several objects of each class viewed together and in relation to the others, would enable him to form an idea of the domestic life, the rites and customs of burial, the methods of the chase and warfare of one or more homogeneous people whose villages and habitations were co-extensive with the territory from which the collection had been obtained. The knowledge so derived would serve, in a measure, to identify the people, to trace their migrations, and by marking the extent of country inhabited by them, indicate their numerical strength and relative importance.

This collection is, with two unimportant exceptions, local—confined within the limits above indicated—and so far representative in a fair degree, generally, of the articles of ornament, domestic utensils, and weapons of the chase and warfare of the former inhabitants of the region.

During the few years after the organization of the Society, this department was formed by the gift of several small collections and many single objects, the most important of which was the collection presented by the late Judge Ross. Unfortunately this interest did not prove continuous, and many specimens which should have been preserved in the Society's collection, were sent away to other cabinets, or passed into the possession of private collectors of the neighborhood. The preceding five years, however, have witnessed a gratifying increase in the number of desirable specimens, caused in part by the care exercised in bringing to the attention of persons possessing such objects, the fact that the value of single objects is greatly enhanced when associated with a number of similar ones; that in this collection they would remain permanently in the neighborhood where found, and be properly classified and arranged. All the specimens, with one exception, have been acquired by

gift. A record is kept of the localities and conditions under which the specimens were found; also, the names of the donors. The classification is by types, in accordance with the nomenclature of Abbott's Primitive Industry.

The field whence the specimens have been obtained, has been carefully gleaned by many collectors, which has practically exhausted the surface finds; any further additions must be sought through the means of excavations, or by purchase. Some attention has been devoted to the former method, but the expenditure of money involved and time required, has prevented any continued or systematic search. In two instances, however, committees of the Society, at their own expense, have made explorations of this kind and thereby secured a number of rare specimens. The collection of earthenware vessels has been more than doubled through this means. The field for this kind of exploration is comparatively untouched now, and any well considered effort, begun in time, would doubtless yield a rich return. There are several collections that have been gathered in this vicinity, which it is believed could be secured by purchase; they could be appropriately, and with advantage, consolidated with this collection, and render the whole a cabinet of the first-class and unique in character. It would be a misfortune if, on passing from the possession of the present owners, they should be lost to this collection and locality. The importance of this suggestion is urged upon the attention of the members, and it is earnestly hoped some action may be taken in this behalf.

Thirty-eight specimens have been added during the past year. The following is a list of objects in the cabinet: 22 grooved stone axes; 15 tomahawks; 25 celts; 43 skinning knives; 2 gouges; 77 chipped flint knives; 59 perforators (drills); 25 scrapers; 1 slickstone; 1 sinew dresser; 3 stone mortars, 1 *lignumvitae*; 5 lapstones; 4 crushers; 25 pestles; 2 large pestles of curious shape; 12 earthenware vessels,

prehistoric, and a half bushel fragments; 15 pieces Zun pottery; 3 pitted stones; 23 chipped flint implements; 2 bone implements; 7 hoe-blades; 3 plummets; 135 net sinkers; 155 spear heads; 1 copper spear head from mound in vicinity; 2400 arrow points; 5 flint daggers; 17 grooved stone club-heads; 20 pipes; 10 discoidal stones; 6 discs, slate and shale; 2 inscribed stones; 1 engraved stone; 8 banner stones; 1 bird-shaped bone; 25 gorgets, totems, etc.; 5 strings beads; 52 hand hammers; 8 rubbing stones; 2 strings wampum; 1 stone last; 4 palaeolithic implements; 1 skin dresser; 2 bows and quivers; 1 canoe. Contents of local shell beds: Half bushel shells; bones of food animals, and fire-stones. Contents of graves: 4 crania; 4 metal vessels; 1 metal thimble; 1 bronze spiral ring; 2 turtle shells, and yellow ochre of several varieties.

Respectfully submitted,

SHELDON REYNOLDS,

February 11, 1885.

Curator of Archæology.

Since the last report there have been added to this cabinet the following: 4 pestles; 2 flaying knives; 1 axe, or tomahawk; 1 one-grooved plummet; 1 stone implement, believed to be a celt or chisel, unique in size, being twenty-two inches long and about four inches wide, ground to an edge at one end and at the other having a shallow transverse groove, for the purpose of fitting a handle; pieces of pottery; 3 spear points, and 55 arrow heads. With the exception of 16 arrow heads, the objects are from this locality, and are a valuable addition to the cabinet.

While the increase of the cabinet during the past year has not been as great in numbers as in certain years, yet the character and rarity of some of the objects quite compensate for any lack of numbers.

As has been said in a previous report, the purpose of the collection is to represent the Archæology of the upper Susquehanna valley and vicinity, and to this section of country the search has been confined. It is a fertile field and has yielded an abundance of relics of the aboriginal; the Society, however, has received but a small proportion of them. Many active private collectors have arisen in competition with the Society, and by means of purchase or solicitation, have obtained various desirable specimens which otherwise would have been given to the Society. While some of these collectors are doubtless well informed in this branch of Archæology, the majority of them, it is believed, seek these objects simply as curiosities, so called, and have no appreciation of their utility as aids to the study of the subject; no record is kept of the locality or condition under which they are found, and thereby they soon become valueless, except as to the very slight interest which may attach to them as the curious relics of an extinct people. Such collectors, in their misguided zeal, are in effect destroying the records by which the student is accustomed to decipher the history of the prehistoric races of this country. It is to be hoped that if these enthusiasts are not willing to place their collections in the keeping of some institution where they may be properly classified and described, they may be prevailed upon at least to exert themselves to make the proper records concerning them. What shall be known of the prehistoric races of America must be learned by means of the remains of those races. The study of this branch of the science of Archæology has advanced with rapid strides in recent years. The work of the Smithsonian Institution, United States Geological Survey, and the Bureau of American Ethnology in this behalf, is too well known to need mention, except, perhaps, to note the fact of their appreciation of the great importance of the subject, which is well shown in their many valuable and beautiful

publications, containing the result of their research and discovery.

Associations of learned men are devoting their time and means in tracing through these remains the story of the people who left no other records. Collections of these objects are being formed in many places; they are carefully preserved, and all the circumstances in relation to them are as carefully ascertained and recorded. In this way the work in one locality supplements and advances the research in another; and what seems an unsolvable problem in one instance, becomes, by reason of examination and comparison, a link in a chain of evidence tending to the corroboration or disproof of some theory or belief. If, therefore, there is any good in American Archæology, these relics, the means of its study and elucidation, are of value, and the associations and individuals who intelligently gather them and render them available for reference and study are doing a commendable work which is sure to be appreciated and acknowledged.

In a community whose early history is so intimately connected with the aboriginal inhabitant, whose literature commemorates so many deeds of heroism, trial, and adventure growing out of this relation, and where can be found many evidences of the Indian occupation, there would seem to be an especial fitness in the collection and preservation of these remains, and thus to contribute all that is possible to the common fund of knowledge of this very interesting science.

Respectfully submitted, .

SHELDON REYNOLDS,

Curator of Archæology.

February 11, 1886.

NUMISMATICS.

The Curator reports that there are in the permanent coin cabinet of the Society, the following coins :

United States silver dollars,	20	
Half dollars,	89	
Quarter dollars,	24	
Twenty cents,	5	
Dimes,	55	
Half dimes,	34	
Three cents,	10	
Colonials,	10	
		— 247
Copper cents,	177	
Half cents,	39	
Nickel cents,	39	
Nickel five cents,	20	
Nickel three cents,	14	
Copper two cents,	11	
		— 300
Colonials,	110	
Hard times tokens,	69	
Advertisement tokens,	85	
War tokens,	200	
		— 464
FOREIGN SILVER.		
South America,	92	
England,	100	
France,	50	
Swiss,	22	
Germany, crowns and half crowns,	60	
Germany, smaller pieces, about	1200	
		— 1524

FOREIGN COPPER.

Canada,	200
South America,	70
Europe,	610
England,	320
Early British,	55
Pompeii,	275
Ancient Rome and Greece,	490
	<hr/> 2020
Medals, copper and silver,	40
Medals, electrotype and white metal,	550
	<hr/> 590
Duplicate silver,	25
Copper duplicate, about	1000
Unassorted, about	1000
	<hr/> 2025
Added, 1884, by purchase,	125
	<hr/> 7285

This estimate may be in excess of the real number, but the duplicates and unassorted, and the small German coins have not been counted.

The history of a country is largely elucidated by its coinage. It is thus important that the American series of coins should be filled up and made as complete as possible without unnecessary expenditure. And, also, that the German principalities, sequestered cities, etc., be more fully represented, especially as these coins are all becoming scarce, and in many cases can only be had by purchase from dealers or at coin sales.

The American coins are made rare by the annual destruction of dies, so that some of the smallest pieces, such as 1802 half-dimes, bring as much as \$150, according to condition. Many of the early and scarce coins that will not cost over \$1 to \$2 apiece are lacking in our cabinet. And

as to the Slavonic coins, while their number is legion, they are daily passing out of circulation and in time will become almost as scarce as the American pieces. The Society, in view of the prospective Osterhout Library, has no real necessity for large expenditures in books; these must come by natural attraction. But the coin cabinet is not so easily filled. I respectfully beg an appropriation of \$50 for the Numismatic department, to be used as is deemed best by the Secretary and the Curator.

The work of classifying the cabinet progresses as rapidly as possible under the circumstances, and a large number of duplicates are on hand for exchange or sale. It is thought best to reduce the number of pieces in the cabinet by a careful sifting out of the best specimens, using the balance in exchange to add those not now in the cabinet.

Respectfully submitted,

HORACE EDWIN HAYDEN,

Curator of Numismatics.

February 11, 1885.

The Curator submits, since the last report, the following additions to the Numismatic cabinet by gift and purchase: Mr. B. Reynolds, 1 United States half-dollar; Mr. S. Reynolds, 6 United States half-dollars; Mr. A. H. McClintock, 1 United States half-dollar and 4 other coins; Mr. John Reichard, 4 United States half-dollars, 16 silver coins and 24 copper coins; Mr. H. Rutter, 1 United States half-dollar, gold; Mr. S. T. Smith, 1 copper half-penny; Rev. Mr. Hayden, 1 medal; by purchase, 5 quarters, 10 dimes, 3 half-dimes; George H. Flanigan, 2 half-dollars and 1 quarter-dollar. In making this report he submits the following suggestions to the consideration of the Society:

While the immediate work of the Society should be confined to those branches which are covered by its name, History and Geology, its valuable numismatic cabinet

should not be neglected. In 1885, the Trustees wisely appropriated the sum of \$25 for the purchase of coins, and this sum was expended in perfecting one set of the United States silver and copper issues, by the purchase of such pieces as cannot be obtained in circulation. Such an appropriation should be made annually.

To the members of the Society this may seem an "expensive luxury," because Numismatics are regarded too much as a mere "boy's hobby," rather than as "the science of coins and medals," as Worcester defines the word.

As an aid to the study of Archæology and History the Science of Numismatics cannot be overestimated. The history of the coins of a country is the history of its finance; the history of the medals of a country is the record of its leading events. A study of the various coins in circulation as money throughout the thirteen colonies until the establishment of the United States Mint, 1793, and subsequently, will naturally lead the student into an examination of the financial problems of every decade in the history of the country. Merely a glance at the medals issued by the United States Mint will reveal the fact that by especial act of Congress, the United States Mint has struck and issued over fifty bronze medals, each of which commemorates some signal victory of the arms of the United States over its foes from 1775 to 1816. These great events cannot be lost in oblivion so long as these medallic records exist.

This is true of nearly all the large collection of medals in our cabinet; with very few exceptions they are historical, perpetuating the memory of great epochs, or individual incidents in the history of the various countries to which they belong.

It is peculiarly true of the ancient Greek and Roman Empires, that not only recorded events, but many events of importance which find no place in known written history, were made immortal by the issue at the time of coins or

medals, bearing the record of the event, in gold, silver, or base metal.

That the study of Numismatics leads up to higher studies, the writer learned by experience, as he was led to the study of the history of Spain and of the peninsular war, by finding in his cabinet, when a youth, a pistareen of Ferdinand VII, "King of Spain," and one of Joseph Bonaparte, "King of Spain," each bearing the same date, 1808.

As one purpose of this Society is the education of coming generations in the history of this section, and those great events of our land connected therewith, it is our duty to see that each branch of her work should be so fully developed that no facility that would aid the student be neglected.

Respectfully submitted,

HORACE EDWIN HAYDEN,

Curator of Numismatics.

February 11, 1886.

PALÆONTOLOGY.

The Curator of the Palæontological Section, while regretting his inability to give the time and attention to the collection committed to his charge that its importance deserves, begs leave to report: That at the beginning of the two years covered by this report, but little had been done towards classifying the fossils accumulated at that time. Forty-eight species of Carboniferous and one Devonian plant had been named by Prof. Leo Lesquereux, at the time of his visit in 1881. Thirty-two species more have been determined during the past year from the materials on hand, and sixty have been added by donation, which increases the number to one hundred and forty species, belonging to upwards of forty genera. Many of the genera are well represented in their typical species, some of which are very fully illus-

trated by large and fine specimens. A moderate outlay of money and well directed efforts on the part of members and friends of the Society would, in a short time, add greatly to the value and usefulness of your collection, which already compares favorably with the best in the country. I feel it my duty to call attention to the great and irreparable loss to science, occasioned by the closing of so many abandoned mines without proper efforts being made to secure the fossils they contain. The loss is more to be regretted in the high coals which exist in limited areas, and are only worked in few localities that will soon be entirely exhausted. The reports of Profs. Claypole and Heilprin, on animal fossils placed in their hands, will show what has been done in that branch; both reports are herewith published, the latter with plates. With sincere thanks for the assistance and many courtesies received at the hands of the officers and members, I would suggest that much more and better service could be rendered by the selection of a resident of the city to have charge of the Section.

Very respectfully,

R. D. LACOE,
Curator of Palaeontology.

February 11, 1886.

MINERALOGY.

The Curator respectfully reports, that during the past year he has gone carefully over the specimens in his charge. He finds that the collection consists of *circa* fifteen hundred specimens representing nearly four hundred different minerals, or about half of those described by Prof. Dana, besides which there are five hundred duplicates, many available for exchange. Nearly all of the most important minerals are represented, some finely, others poorly; an ex-

ception to this statement are Platinum and its accompanying metals of Osmium, Palladium, Iridium, &c., no specimens of which are to be found in our collection.

We need an increase of specimens in our gold and silver ores, especially amalgams, and some manganese, cobalt, ammonia and alumina compounds should be added to make the collection as it stands more evenly balanced. Many groups of minerals are finely represented, as for instance, combinations of the metals, iron, copper, zinc, tin, mercury and lead.

The additions to this department during the past year have been but few in number, only twenty-two specimens, but they were desirable accessions.

An appropriation of at least \$25 should be made to this department during the coming year, for the purpose of securing sets of specimens to represent the physical properties of minerals, such as hardness, specific gravity, color and the like. This appropriation is asked for this purpose now because a number of young boys are becoming interested in the study of mineralogy. Our collections are not merely for show, and their increase should be selected with the express object in view of simplifying study, and of giving every advantage in like cases, and surely no more certain method can be adopted for securing the permanence of our Society, than by showing to the rising generation that it is essentially an educational institution and of practical use.

Respectfully submitted,

HARRISON WRIGHT, Curator.

February 11, 1885.

CONCHOLOGY.

The increase of the cabinet of Conchology since last report has not been as great as in preceding periods, yet some advance is constantly made. Any large accession to the numbers of the specimens would be of little benefit to the public at present, as the entire space available for this department is fully occupied, and will demand in the anticipated new location of a hall a space of not less than double the capacity at present allotted; for there is now stored, but out of view, many specimens, most of which are yet to be classified. In this connection, it is proper to mention the difficulty and delay in the work of classification of these specimens for want of proper books and illustrations on the subject; especially as we are remote from those great standard collections which exist in the cities. At present the only guides we have are two or three small manuals which were donated to the Society; it is therefore recommended that an appropriation by the Society at an early date be made for the purchase of proper standard illustrated works on the subject.

The following tabulation gives the present condition of the cabinet. The arrangement accords with the system adopted by the British association of conchologists, and is followed in the arrangement of the great collection in the British Museum. The basis of the system is that of the anatomical distinctions of the animals belonging to the shells.

The table includes 141 genera and 752 species.

CONTENTS OF CABINET.

- CLASS I.—Cephalopoda.
 ORDER I.—Dibanchiata.
 SECTION A.—Octopoda.
 FAMILY I.—Argonautidae.
Argonauta argo.
 SECTION B.—Decapoda.
 FAMILY VI.—Spirulidae.
Spirula.
 ORDER II.—Tetrabranchiata.
 FAMILY I.—Nautilidae.
Nautilus pompilius.
 CLASS II.—Gasteropoda.
 ORDER I.—Prosobranchiata.
 SECTION A.—Siphonostomata.
 FAMILY I.—Strombidae.
STROMBUS contiginosus.
S. vitatus.
S. bubonius.
S. auris Diana.
S. gibberulus.
S. luhuanus.
S. plicatus.
S. Floridus.
S. granosus.
S. minimus.
S. Canarium.
S. variabilis.
S. alata.
S. pugilis.
S. pyrulatus.
S. 7 species undetermined.
 FAMILY II.—Muricidæ.
MUREX pinnatus.
M. tenuispina.
M. regia.
M. palmarosa.
M. rarispina.
M. inflatus.
M. adustus.
M. radix.
M. Senegalensis.
MUREX mesorius.
M. haustillum.
M. ramosus.
M. brassica.
M. pomum.
M. Lalleanus.
M. endivia.
M. 5 species undetermined.
TYPIS, undetermined.
RANELLA caudata.
R. granifera.
R. ventricosa.
R. tuberculata.
R. lampas.
R. albivariostata.
R. Buffonia.
R. coelata.
R. gyrina.
R. margaretula.
R. pustulosa.
R. crumena.
R. vexillum.
R. 6 species undetermined.
TRITON tritonis.
T. variegatus.
T. tuberosus.
T. cancellatus.
T. rudis.
T. cathrata.
T. 4 species undetermined.
FASCIOLARIA distans.
F. filamentosa.
TURBINELLA, undetermined.
T. " ".
T. " ".
PYRULA paperacea.
P. pugilina.
P. sub-genus coronata.
FUSUS cinereus.
F. incisus.
F. decemcostata.
F. aciculata.
F. oblitus.
F. Islandicus.
F. colus.
F. sub-genus incisum.

FAMILY III.—Buccinidae.

- BUCCINUM nasa.**
 B. obsoletum.
 B. vibex.
 B. spirale.
 B. rubiginosum.
 B. papillosum.
 B. undatum.
 B. 2 species undetermined.
- TEREBRA crenulata.**
 T. subulata.
 T. maculata.
 T. dimediata.
 T. pertusa.
- EBURNA spirata.**
 E. areolata.
- NASSA incrassata.**
 N. mendica.
 N. stolata.
 N. mutabile.
 N. hirata.
 N. nerata.
- PURPURA cataraeta.**
 P. aperta.
 P. capillus.
 P. crispata.
 P. canaliculata.
 P. saxicola.
 P. lapillus.
 P. carinifera.
 P. armigera.
 P. triangularis.
 P. Peruvianus.
 P. kiosquiformis.
 P. 4 species undetermined.
- MONOCEROS imbricatum.**
 M. crassilabrum.
 M. undetermined.
- RICINULA arachnoides.**
 R. granulata.
 R. horrida.
 R. ricinus.
 R. undetermined.
- PLANAXIS sulcata.**
 P. nigrifella.
 P. undetermined.

- CASSIS granulosa.**
 C. flammea.
 C. testiculus.
 C. erinaceous.
 C. vibex.
 C. undata.
 C. saburon.
 C. 4 species undetermined.
- ONISCIA oniscus.**
 O. cancellata.
- CASSIDARIA, undetermined.**
- DOLIUM galea.**
 D. pomum.
 D. perdix.
 D. maculatum.
 D. 3 species undetermined.
- HARPA ventricosa.**
 H. nobillis.
 H. undetermined.
- COLUMBELLA mercatoria.**
 C. avara.
 C. Amycla.
 C. scripta.
 C. major.
 C. pallida.
 C. mendecaria.
 C. fulgurans.
 C. rustica.
 C. recurva.
 C. strombiformis.
 C. Bowinii.
 C. 3 species undetermined.
- OLIVA inflata.**
 O. spirata.
 O. gibbosa.
 O. carniola.
 O. Peruviana.
 O. tigrina.
 O. tricolor.
 O. erythrostroma.
 O. porphyra.
 O. 3 species undetermined.
 O. baetica.
 O. sub-genus biplicata.
 O. " " jaspidae.
 O. " " oriza.
 O. 13 species undetermined.

ANNULARIA, undetermined.

FAMILY IV.—Conidae.

CONUS marmoreus.

- C. hebraeus.
- C. flavidus.
- C. quercinus.
- C. textilus.
- C. imperialis.
- C. arenatus.
- C. publicarius.
- C. eburneus.
- C. striatus.
- C. geographus.
- C. tessellatus.
- C. lithoglyphus.
- C. nebulosus.
- C. 10 species undetermined.

PLEURATOMA nodifera.

- P. mitraeformis.
- P. marmorata.
- P. oxytropis.
- P. grandis.
- P. 2 species undetermined.

FAMILY V.—Volutidae.

VOLUTA musica.

- V. vespertilio.
- V. undetermined.

CYMBA proboscidalis.

- C. undetermined.

MITRA episcopalis.

- M. ferruginea.
- M. cucumerina.
- M. scutulata.
- M. cardinalis.
- M. pauperpula.
- M. Caffra.
- M. exasperata.
- M. melaniana.
- M. conica.
- M. flammea.
- M. 2 species undetermined.

MARGINELLA primum.

FAMILY VI.—Cypræidæ.

CYPRÆA Europa.

- C. pallida.
- C. caput-serpentis.

CYPRÆA obvelata.

- C. talpa.
- C. tigris.
- C. lynx.
- C. mauretana.
- C. mappa.
- C. carniola.
- C. vitellus.
- C. caurica.
- C. eburnea.
- C. moneta.
- C. crosa.
- C. Isabella.
- C. Arabica.
- C. arenosa.
- C. 13 species undetermined.

OVULUM verucosum.

- O. ovum.
- O. volva.

ERATO laevis.

SECTION B.—Holostomata.

FAMILY I.—Naticidæ.

NATICA mamilla.

- N. duplicata.
- N. lineata.
- N. heros.
- N. stercus.
- N. albumen.
- N. millepunctata.
- N. melanostoma.
- N. lineata.
- N. 5 species undetermined.

SEGARETUS perspectivus.

FAMILY III.—Cerithiadæ.

CERITHIUM nodulosum.

- C. reticulatum.
- C. morus.
- C. filosum.
- C. vertagus.
- C. adansonii.
- C. lineatus.
- C. obeliscum.
- C. versicolor.
- C. uncinatum.
- C. atratum.
- C. ocellatum.
- C. adustum.

- C. vulgatum.*
C. aluco.
C. telescopium.
C. sub-genus filosum,
C. " " munita.
C. 9 species undetermined.
POTAMIDES, undetermined.
P. " "
P. " "
P. sub-genus macroptera.
P. " " negrescens.
STRUTHOLARIA noduloso.
FAMILY IV.—Melaniadæ.
MELANIA fasciolata.
M. acula.
M. varicosa.
M. sitosa.
M. lineolatus.
M. sub-genus pyramus.
M. " " atra.
PALUDOMUS maculatus.
MELANOPSIS Zelandica.
FAMILY V.—Turritellidæ.
TURRITELLA radula.
T. duplicata.
T. tigrina.
T. 2 species undetermined.
SCALARIA multistriatum.
S. pretiosa.
S. 2 species undetermined.
VERMETUS lumbricatus.
FAMILY VI.—Littorinidæ.
LITTORINA rudis.
L. litorales.
L. scutulata.
L. planaxis.
L. palliata.
L. scabra.
L. conica.
L. zebra.
L. ziczac.
L. sub-genus unidens.
L. 2 species undetermined.
SOLARIUM perspectivum.
- PHORUS conchliphorus.**
P. solarus.
P. indens.
LACUNA porecta.
L. variagata.
TRUNCATELLA corrugata.
FAMILY VII.—Paludinidæ.
PALUDINA vivipera.
P. ponderosa.
AMPULARIA guyanensis.
A. depressa.
A. cornu arietas.
A. sub-genus olivaceous.
FAMILY VIII.—Neritidæ.
NERITA peloronta.
N. marginata.
N. yoldi.
N. plicata.
N. polita.
N. albicella.
N. 18 species undetermined.
NERITINA viridis.
N. crepidularia.
N. cariosa.
N. crysocolla.
N. granosa.
FAMILY IX.—Turbinidæ.
TURBO tessellatus.
T. cornutis.
T. versicolor.
T. rugosus.
T. pelthiolatus.
T. opolus.
T. ater.
T. saxosus.
T. pagodus.
T. 7 species undetermined.
IMPERATOR semicastator.
TROCHUS umbilicatus.
T. cinerareus.
T. exiguus.
T. Niloticus.
T. obeliscus.
T. cœlatus.
T. marmoreus.

- TROCHUS** *intextus*.
 T. caeruleus.
 T. funebral.
 T. maculatus.
 T. ziziphinus.
 T. sub-genus pupilla.
 T. " " distortus.
 T. 5 species undetermined.
- ROTELLA** *lineolata*.
 R. elegans.
- MONODONTO** *villanus*.
- DELPHINULA** *lancinatum*.
 D. sub-genus foliatum.
 D. undetermined.
- FAMILY X.—Haliotis**.
- HALIOTIS**, *undetermined*.
 H. " "
- PLEURATOMARIA** *nodifera*.
 P. mitraformis.
 P. marmorata.
 P. oxytropis.
 P. grandis.
 P. 2 species undetermined.
- IANTHINA** *fragilis*.
- FAMILY XI.—Fissurellidæ**.
- FISSURELLA** *reticulata*.
 F. cratica.
 F. 6 species undetermined.
- EMARGINULA** *reticulata*.
- FAMILY XII.—Calyptæidæ**.
- CALYPTÆ**, *undetermined*.
 C. crucibulum.
 C. sinensis.
- CREPIDULUM** *dilata*.
 C. fornicata.
 C. dorsata.
 C. navicella.
 C. adunca.
- HIPPONIX** *cranioides*.
- FAMILY XIII.—Patellidæ**.
- PATELLA** *daurata*.
 P. sagittata.
 P. testudinaria.
- PATELLA** *vulgata*.
 P. miniata.
 P. instabilis.
 P. 11 species undetermined.
- ACMÆA** *persona*.
 A. mitra.
- SIPHONARIA** *amara*.
- FAMILY XIV.—Dentallidæ**.
- DENTALIUM** *elephantum*.
 D. pretiosum.
- FAMILY XV.—Chitonidæ**.
- CHITON** *squamosis*.
 C. Cumingii.
 C. 2 species undetermined.
- ORDER II.—Pulmonifera**.
- SECTION A.—Inoperculata**.
- FAMILY I.—Helicidæ**.
- HELIX** *cictricola*.
 H. demoralis.
 H. aspersa.
 H. albolabra.
 H. tridentata.
 H. veridostrata.
 H. epistylum.
 H. Listerii.
 H. Owenii.
 H. Caffra.
 H. caracolla.
 H. mirabilis.
 H. confuso.
 H. secernuda.
 H. laxata.
 H. 7 species undetermined.
- BULIMUS** *densis*.
 B. Niallatus.
 B. pythogaster.
 B. Adansonii.
 B. virgatus.
 B. Mindorensis.
 B. oblongus.
 B. 3 species undetermined.
- ACATINA** *granulata*.
 A. Virginea.
 A. sub-genus lanahells.
- PUPA**, *undetermined*.

FAMILY IV.—Limnaeidae.
 PHYSA, 3 species undetermined.
 PLANORBIS corpulentis.
 P. bicornatus.
 P. 4 species undetermined.

FAMILY V.—Auriculidae.
 AURICULA bidentata.
 A. metalica.
 A. sub-genus pollex.
 CONOVULUS luteus.

SECTION B.—Operculata.

FAMILY VI.—Cyclostomidae.
 CYCLOSTOMA semistriatum.
 C. omphalotropis.

ORDER III—Opistho-branchiata

SECTION B.—Nudibranchiata.

FAMILY II.—Bullidae.
 BULLA naucum.
 B. striata.
 B. albocinota.
 B. 2 species undetermined.

APLUSTRUM thalassiarchim.

FAMILY VII.—Tritoniadæ.
 TRITON tritonsis.
 T. variegatus.
 T. tuberosus.
 T. cancellatus.
 T. rudis.
 T. pileare.
 T. vestitum.
 T. corrugatum.
 T. nodiferous.
 T. lotorium.
 T. cathrata.
 T. chlorostoma.
 T. 2 species undetermined.

CLASS IV.—Brachiopoda.

FAMILY II.—Spiriferidæ
 SPIRIFER Peronii.

CLASS V.—Conchifera.

SECTION A.—Asiphonida.

FAMILY I.—Ostreidæ.

OSTREA indet.
 O. sub-genus plica.
 O. 3 species undetermined.

ANOMIA ephippium.
 A. black.

PLACUNA placenta.

PECTEN dislocatus.
 P. nodosus.
 P. rubidus.
 P. hostatus.
 P. sinensis.
 P. ziczac.
 P. japonicus.
 P. radula.
 P. irradians.
 P. concava.
 P. Jacobaeus.
 P. 5 species undetermined.

LIMA, 1 species undetermined.

SPONDYLUS imperialis.

PLICATULA, 1 species undeterm'ed

FAMILY II.—Aviculidae.

AVICULA bidentata.
 A. sub-genus albus.
 A. " " margaritifa.
 A. 2 species undetermined.

AVICULA-PECTEN, 1 species unde'd

PERNA ephippium.
 P. petibulun.

PINNA muricata.

FAMILY III.—Mytilidae.

MYTILUS perna.
 M. edulis.
 M. chonos.
 M. 1 species undetermined.

MODIOLA castanea.

M. dimisis.
M. lithophaga.
M. castanea.

- FAMILY IV.—Arcadae.
- ARCA pexata.
 A. incongrua.
 A. Noae.
 A. lactea.
 A. loricata.
 A. semitorta.
 A. 3 species undetermined.
- PECTUNCULUS, 1 species undeter'd.
- NUCULA, 1 species undetermined.
- FAMILY VI.—Unionidae.
- UNIO heterodon.
 U. complanatus.
 U. radicatus.
 U. gracilis.
 U. undulata.
 U. pupilla.
 U. margaritifera.
- SECTION B.—Siphonida, Integro-pallialia.
- FAMILY VII.—Chamidae.
- CHAMA arcinella.
 C. cristella.
 C. 2 species undetermined.
- FAMILY IX.—Tridacnidae.
- TRIDACNA squamosa.
 T. sub-genus maculata.
- FAMILY X.—Cardiadae.
- CARDIUM muricatum.
 C. magnum.
 C. costata.
 C. edule.
 C. corbis.
 C. sublineatum.
 C. unedo.
 C. cardissa.
 C. 3 species undetermined.
- FAMILY XI.—Lucinidae.
- LUCINA undata.
 L. divaricata.
 L. Pennsylvanica.
 L. tigrina.
- LUCINA punctata.
 L. radula.
 L. boreallis.
- KELLIA cumata.
- FAMILY XII.—Cyclidae.
- CYCLAS transversam.
 C. sub-genus striatinum.
- CYRENE tenebrosa.
- FAMILY XIII.—Cyprinidae.
- CIRCE castrensis.
 C. 1 species undetermined.
- ASTARTE castanea.
- ISOCARDIA vulgaris.
- CYPRICARDIA obesa.
- CARDITA antiquata.
 C. laticosta.
 C. affinis.
 C. crassecosta.
 C. sub-genus imbricata.
- SECTION C.—Siphonidae; sinu-pallialia.
- FAMILY XIV.—Veneridae.
- VENUS Sayii.
 V. paphia.
 V. geographica.
 V. notata.
 V. reticulata.
 V. ovata.
 V. flexuoso.
 V. faciata.
 V. cancellata.
 V. grata.
 V. squalidus.
 V. subrugosa.
 V. 5 species undetermined.
- CYTHEREA concentrica.
 C. dione.
 C. erycina.
- ARTEMIS discus.
 A. 1 species undetermined.
- LUCINOPSIS tenuis.
 L. Chinaensis.

- TAPES pulara.
 T. staminea.
 T. obesa.
- FAMILY XV.—Mactridae.
- MACTRA lateralis.
 M. stultorem.
 M. solida.
 M. alba.
 M. 3 species undetermined.
- LUTRARIA canaliculata.
 L. lineata.
 L. elliptica.
 L. 1 species undetermined.
- FAMILY XVI.—Tellinidae.
- TELLINA polita.
 T. mœra.
 T. linguafelis.
 T. alternata.
 T. angulata.
 T. galathea.
 T. laevigata.
 T. scobinata.
 T. pumicea.
 T. 3 species undetermined.
- PSAMOBIA diphos.
- AMPHIDESMA flavescens.
 A. 1 species undetermined.
- GALATEA, 1 species undetermined.
- DONAX varcibilis.
 D. Californicus.
 D. sub-genus Braziliensis.
- FAMILY XVII.—Solenidae.
- SOLENS ensis.
 S. veridis.
 S. minuta.
- SOLECURTUS radiata.
- CAPSULA rugosa.
- FAMILY XVIII.—Myacidae.
- MYA, 1 species undetermined.
- CORBULA labiata.
 C. nucleus.
- FAMILY XIX.—Anatinidae.
- THRACIA pubescens.
- FAMILY XX.—Gastrochaenidae
- SAXICAVA rugosa.
- ASPEAGILLUM vaginiformis.
- FAMILY XXI.—Pholalidae.
- PHOLAS costata.
- TEAEDO navalis.

Respectfully submitted,

February 11, 1886.

CHARLES F. INGHAM,
 Curator of Conchology.

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Meteorological Observations taken at Wilkes-Barre, Pa., for February, 1884, by E. L. Dana.

(Latitude 41° 14' 40.4" Longitude West 1° 10' 4.6")

Day	THERMOMETER.			Wind	Clouds	Average Temp	BAROMETER.			REMARKS.	
	7 A. M.	3 P. M.	9 P. M.				7 A. M.	3 P. M.	9 P. M.		
1	28.6 C. Cu. S.	24.0	12 N. W.	0	11.18%	29.20	76.29	31.74	29.52	77	River 4 ft. +; sleighing poor in town.
2	12.8 Cu. S.	31.10	1 W.	0	25.2%	29.43	77.29	40.55	29.58	78	5. Rain fall last night
3	12.1 Cir.	38.0	1 W.	0	40.3%	29.67	79.66	72.29	58.75	75	6. Rain began 11:30 A. M.; ice on river 4 ft. to in.; rain fall
4	34.10 Nimb.	41.2	1 E.	10 Nimb.	34.3%	29.64	79.58	75.29	53.73	73	7. Rain fall last night; ice broke 4:45 A. M.; river 18 ft. +
5	33.10 Str.	40.1	1 W.	10 Nimb.	36.3%	29.25	72.29	19.32	29.23	78	8. R. F. last night; river 5 P. M. 12 ft. plus.
6	35. Fog & R.	40.1	1 S. W.	10 Nimb.	37.3%	29.15	72.29	15.87	29.33	82	9. R. F. 10-day 11; river at P. M. 11 ft. plus.
7	35. Fog & R.	40.1	1 S. W.	10 Nimb.	37.3%	29.46	77.29	66.82	29.70	74	10. Snow fall last night 2 in.; melted
8	34.10 Nimb.	37.10	1 E.	10 Nimb.	33.3%	29.77	73.29	68.82	29.66	74	11. This A. M. river 8 ft. 10 in.
9	34.10 Cu. S.	37.10	1 E.	10 Nimb.	35.3%	29.50	76.29	40.29	52.78	77	12. R. last night 1.9; river this A. M. 7 ft. 11 in.
10	34.10 Cu. S.	33.4	1 E.	10 Nimb.	28.3%	29.81	76.29	89.78	29.90	77	13. Slight rain 12 M.; river 8 ft. +
11	28.10 Fog.	44.8	1 S. W.	10 Nimb.	40.3%	29.60	73.29	55.78	29.55	82	14. R. yesterday & this A. M. 49; Riv. 18 ft.
12	35.10 Str.	43.8	1 S. W.	10 Nimb.	39.4%	29.20	76.29	17.85	29.20	79	15. River at P. M. 20 ft. +
13	18.3 Cu. S.	43.8	1 S. W.	10 Nimb.	27.2%	29.04	80.29	20.78	29.51	78	16. River at 5 P. M. 15 ft. +
14	18.3 Cu. S.	43.8	1 S. W.	10 Nimb.	27.2%	29.79	79.29	74.29	62.72	72	17. Raining all A. M.; fall up to 5 P. M. 44.
15	13.0 Nimb.	33.8	1 S.	10 Nimb.	30.2%	30.04	71.29	97.84	29.85	74	18. R. last night .05; river at 12 M. 9 ft. +
16	39.10 Nimb.	48.10	1 E.	10 Nimb.	43.3%	29.63	72.29	45.76	29.20	77	19. Rain last night .04; river 8 ft. +
17	37.3 Cir. S.	48.10	1 E.	10 Nimb.	43.3%	29.13	76.29	17.81	29.36	80	20. Rain last night .44; river 5 P. M. 12 ft. +
18	43.8 Cu. S.	42.10	1 N. W.	10 Nimb.	36.3%	29.49	84.29	46.81	29.25	77	21. River 12 ft. +
19	43.8 Cu. S.	31.1	1 N. W.	10 Nimb.	21.2%	29.77	79.29	20.74	29.50	74	22. Raining 7 A. M.; R. .08; river 8 ft. +
20	21.10 Cir.	37.0	1 W.	0	34.3%	29.36	74.29	37.81	29.50	78	23. Rain last night and yesterday .04 in.
21	19.0 Nimb.	41.1	1 N.	0	18.2%	29.64	75.29	49.78	29.28	76	24. Slight snow last night; river 5 ft. +
22	37.10 Nimb.	41.1	1 N.	0	23.2%	29.05	75.29	15.76	29.33	72	25. Snowing 7 A. M.; at 2 P. M. 2 in.; R. F. .31 in.
23	37.10 Nimb.	41.1	1 N.	0	23.2%	29.66	71.29	66.72	29.56	71	Total rain fall 3.31 in.
24	37.10 Nimb.	41.1	1 N.	0	37.3%	29.59	79.29	44.80	29.36	83	Total depth of snow 4.00 in.
25	37.10 Nimb.	41.1	1 N.	0	35.3%	29.18	78.29	19.64	29.15	82	Average temperature 31°
26	33.10 Cu. S.	36.10	1 N. W.	10 Nimb.	31.3%	29.24	76.29	24.78	29.14	72	
27	33.10 Nimb.	35.10	1 N.	10 Nimb.	9.2%	29.70	78.29	28.75	28.90	70	
28	31.10 Nimb.	31.10	1 N.	10 Nimb.	3.4%	29.00	85.29	29.05	29.05	65	
29	31.10 Nimb.	31.10	1 N.	10 Nimb.	5.4%	29.00	85.29	29.05	29.05	65	

Meteorological Observations taken at Wilkes-Barre, Pa., for March, 1884, by E. L. Dana.

(Latitude 41° 14' 40.4" Longitude West 10° 4.6')

Day.	THERMOMETER.			BAROMETER.			REMARKS.
	7 A. M.	4 M.	9 P. M.	7 A. M.	9 P. M.	9 P. M.	
1	3	18	1	29.22	29.18	29.14	2. Snow last night and to-day 1 in.; river closed last night 6 ft. +
2	10 Nimb.	1 N.	2 W.	29.04	29.03	29.02	3. S. last night 2 in.; to-day 1/2 in.; melted. .17 in.
3	14 3 Cir.	1 W.	1 N. E. W.	29.06	29.06	29.06	4. Ice on river pier 5 1/2 ft. +
4	5 0	21 10 Nimb.	1 N. E. W.	29.50	29.50	29.50	5. Snowing afternoon and evening.
5	0 3 Cir. S.	29 10 Nimb.	1 S. E.	29.60	29.60	29.60	6. S. 1 1/2 in.; melted. .17; river 5 1/2 ft. +
6	24 10 Cir.	37 10 Cir.	1 S. E.	29.54	29.54	29.54	7. Slight R., freezing A. M.; raining 9 P. M.
7	27 10 Nimb.	29 10 Nimb.	1 N. E.	29.26	29.26	29.26	8. Rain fall yesterday and night 1.26; rain fall 2 P. M. .03
8	31 10 Nimb.	36 10 Nimb.	1 S. E.	29.38	29.38	29.38	9. Rain fall yesterday and last night .30;
9	32 10 Cir. S.	32 10 Cu. S.	1 N. N.	29.60	29.60	29.60	10. Snow to-day 1 1/2 in.
10	21 1 Cu.	33 1 Cir. S.	1 N. E.	29.60	29.60	29.60	11. Rain and snow fall of yesterday59 in.
11	28 10 Str.	41 9 Cu. S.	1 S. S.	29.20	29.20	29.20	12. Began raining 8 P. M.
12	48 10 Nimb.	46 10 Cir. S.	1 S. S.	29.21	29.21	29.21	13. Rain fall up to 7 A. M. .56; later .1975 in.
13	31 6 Cu. S.	47 5 Cu.	1 E.	29.54	29.54	29.54	14. Began raining 11 A. M.
14	32 10 Nimb.	36 10 Nimb.	1 E.	29.37	29.37	29.37	15. Rain fall16 in.
15	26 10 Nimb.	36 4 Cu. S.	1 N. E.	29.56	29.56	29.56	16. Rain fall 7 A. M. .16; in P. M. .3652 in.
16	29 4 Cu.	32 2 Cu. S.	1 N. E.	29.66	29.66	29.66	17. Rain fall 7 A. M. .05; at 9 P. M. .0813 in.
17	34 10 Cir. S.	46 9 Cu. S.	1 S. S.	29.66	29.66	29.66	18. Rain fall08 in.
18	31 2 Cir. Cu.	45 5 Cir. S.	1 S. E.	29.66	29.66	29.66	19. Rain fall02 in.
19	33 10 Nimb.	38 10 Nimb.	1 N. E.	29.07	29.07	29.07	20. Rain fall38 in.
20	36 10 Nimb.	46 9 Cu.	1 N. E.	29.60	29.60	29.60	21. Rain fall35 in.
21	34 10 Nimb.	46 9 Cu.	1 N. E.	29.57	29.57	29.57	22. Rain fall
22	38 9 Cu. S.	53 3 Cu.	1 S. W.	29.68	29.68	29.68	23. Rain began 11 A. M.
23	42 10 Nimb.	45 10 Cir. S.	1 S. E.	29.57	29.57	29.57	24. Slight rain 9 A. M.; river 11 ft. +
24	46 10 Nimb.	54 9 Cu.	1 S. E.	29.18	29.18	29.18	Total rain fall4.91 in.
25	39 9 Cu. S.	53 10 Nimb.	1 N. E.	29.42	29.42	29.42	Total depth of snow6.50 in.
26	42 10 Cu. S.	47 9 Cu. S.	1 W.	29.08	29.08	29.08	Average temperature 33%
27	42 9 Cu. S.	47 9 Cu. S.	1 W.	29.04	29.04	29.04	
28	36 0	56 5 Cu. S.	1 W.	29.00	29.00	29.00	
29	19 2 Cir. S.	55 0	1 N. E.	29.00	29.00	29.00	
30	19 2 Cir. Cu.	52 30 0	1 N. W.	29.37	29.37	29.37	
31	15 0	44 10 N. W.	1 N. N.	29.43	29.43	29.43	

Meteorological Observations taken at Wilkes-Barre, Pa., for April, 1884, by E. L. Dana.

(Latitude 41° 14' 40.4" Longitude West 1° 10' 4.6")

Day.	THERMOMETER.				BAROMETER.				REMARKS					
	7 A. M.	Clou. -s.	Wind.	3 P. M.	Clou. -s.	Average Temp.	Clou. -s.	Wind.		7 A. M.	2 P. M.	9 P. M.	Air. Th.	Air. Th.
1	35	8 Cir.	S.	1 N.	3	39.40	W.	39.40	0	74.29	23.88	29.14	82	
2	36	10 Nimb.	S.	1 N.	3	33.33	E.	33.33	0	80.79	25.63	27.28	80	R. fall last night, .46; thunder shower last night, rain fall to-day, .27
3	32	10 Cu.	S.	3 N.	W.	34.34	W.	34.34	3 N.	80.75	28.88	29.00	76	R. F. last night, .10; river 12 M. 5 ft. +
4	35	10 Cu.	S.	3 N.	W.	39.45	W.	39.45	3 N.	29.00	27.28	29.00	78	River 4 ft. +
5	34	10 Cu.	S.	3 N.	W.	33.34	W.	33.34	3 N.	29.02	29.00	27.29	78	Rain during P. M.; also, at 9:15 P. M.
6	30	10 Cu.	S.	3 N.	W.	32.32	W.	32.32	3 N.	29.00	27.29	29.14	72	R. F. yest., .11; 3 P. M. snowing; snow and rain fall .77
7	33	9 Cu.	S.	2 N.	W.	38.38	W.	38.38	0	29.17	28.29	29.00	80	and rain fall .77
8	28	0	S.	2 N.	W.	40.40	W.	40.40	1 S.	29.25	29.18	29.24	76	Rain and snow fall of last eve, .51
9	37	10 Nimb.	S.	2 N.	E.	33.34	E.	33.34	1 E.	29.02	28.89	28.94	79	Rain at 7 A. M.
10	37	8 Cu.	S.	2 N.	E.	39.45	E.	39.45	0	29.12	28.89	28.94	75	Rain last night and yesterday, .19
11	39	9 Cu.	S.	1 N.	W.	39.45	W.	39.45	0	29.28	28.89	29.00	48	River 5 ft. +
12	31	0	S.	1 N.	W.	45.45	W.	45.45	0	29.53	29.46	29.41	78	
13	35	4 Cir.	S.	0	0	43.43	0	43.43	0	29.44	29.42	29.40	41	
14	35	0	S.	0	0	47.47	0	47.47	0	29.50	29.41	29.40	87	Total rain fall 2.31 in.
15	44	10 Nimb.	S.	2 S.	E.	51.49	E.	51.49	2 S.	29.37	29.08	29.00	81	Total rain fall for April, 1883 2.70 in.
16	49	9 Cu.	S.	2 S.	E.	50.50	E.	50.50	2 S.	29.00	29.02	29.16	80	Average temperature 44.5°
17	44	8 Cu.	S.	2 S.	E.	41.41	E.	41.41	2 S.	29.26	29.32	29.40	80	
18	40	10 Cir.	S.	2 W.	W.	41.41	W.	41.41	2 N.	29.42	29.40	29.40	80	
19	44	10 Cir.	S.	2 W.	W.	43.43	W.	43.43	2 N.	29.42	29.40	29.40	76	
20	47	8 Cu.	S.	1 E.	E.	49.49	E.	49.49	1 E.	29.38	29.35	29.35	80	
21	36	10 Cu.	S.	1 E.	E.	47.47	E.	47.47	1 E.	29.40	29.35	29.35	80	
22	34	3 Cir.	S.	2 N.	W.	36.36	W.	36.36	2 N.	29.57	29.54	29.55	74	
23	38	0	S.	2 N.	W.	41.41	W.	41.41	2 N.	29.55	29.48	29.47	76	
24	48	3 Cir.	S.	1 N.	E.	48.48	E.	48.48	0	29.45	29.34	29.30	79	
25	45	10 Cir.	S.	1 N.	E.	51.51	E.	51.51	0	29.32	29.25	29.25	84	
26	53	3 Cir.	S.	3 N.	W.	49.49	W.	49.49	3 N.	29.20	29.07	29.01	83	
27	48	0	S.	1 N.	W.	57.57	W.	57.57	3 N.	29.17	29.17	29.30	82	
28	54	0	S.	3 N.	W.	59.59	W.	59.59	3 N.	29.50	29.40	29.41	84	
29	44	0	S.	3 N.	W.	58.58	W.	58.58	3 N.	29.43	29.34	29.41	81	
30	41	0	S.	3 N.	W.	56.56	W.	56.56	3 N.	29.45	29.48	29.52	80	
31	41	0	S.	3 N.	W.	56.54	W.	56.54	3 N.	29.53	29.46	29.43	81	

Meteorological Observations taken at Wilkes-Barre, Pa., for May, 1884, by E. L. Dana.

(Latitude 41° 14' 40.4" Longitude West 1° 10' 4.6")

Day.	THERMOMETER.				BAROMETER.				REMARKS.					
	7 A. M.	Clou.	Wind.	3 P. M.	Clou.	Wind.	Average Temp.	Clou.		Wind.	7 A. M.	Att. Th.	3 P. M.	Att. Th.
1	53	5 Cir. S.	1 W.	77	1 Cu.	2 W.	66.65	9 Cu.	2 S. W.	29.41	29.30	29.29	29.56	2. Smoky; forest fires at 3:40 P. M.; dark moon smoke.
2	63	5 Cir. S.	0	85	2 Cir.	5 W.	59.66	0 Smoky.	1 N.	29.25	29.10	29.46	29.83	4. Raining 10 A. M. to 4 P. M.; rain fall .36 in.
3	44	0 Smoky.	1 W.	35	0 Nimb.	3 W.	50.57	0 Smoky.	0	29.65	29.60	29.50	29.85	5. Slight rain 10 A. M. to 4 P. M.; rain fall .90 in.
4	45	0 Nimb.	1 W.	55	0 Nimb.	1 W.	51.50	0 Nimb.	0	29.64	29.50	29.51	29.82	6. R. last night to 8 A. M.; 45; to 4 P. M. 45.
5	50	0 Nimb.	1 S.	66	9 Cu. S.	2 E.	60.60	7 Cir.	0	29.40	29.35	29.30	29.50	7. Rain falling afternoon
6	57	0 Nimb.	1 N.	57	10 Nb. R.	2 E.	52.54	10 Cu.	2 N.	29.29	29.24	29.26	29.63	8. Rain last shower
7	49	0 Cu. S.	2 N.	50	0 Cu. S.	2 E.	45.47	10 Cu.	2 N. W.	29.30	29.32	29.30	29.37	9. Rain last shower 5 P. M.; K. F. to 7 P. M. 47 in.
8	46	0 Cu. S.	1 W.	38	0 Cu. S.	1 E.	52.51	0 Cu.	1 S. W.	29.38	29.34	29.33	29.51	10. River 3 ft.
9	50	0 Cu. S.	1 W.	53	8 Cu. S.	2 W.	49.53	2 Cir. Cu.	0	29.27	29.09	29.10	29.18	11. Rain till last night
10	48	3 Cu.	2 W.	50	0 Cu. S.	2 W.	47.90	2 Cir. S.	1 E.	29.08	29.04	29.05	29.13	12. Sprinkle of rain 6:27 P. M.
11	48	3 Cu.	3 W.	53	5 Cu. S.	3 N.	46.90	2 Cu. S.	2 S. W.	29.06	29.04	29.02	29.29	13. Rain during last night
12	48	3 Cu.	3 W.	64	3 Cu. S.	3 N.	53.54	0 Nimb.	0	29.30	29.30	29.36	29.79	14. Rain during last night
13	48	0	1 W.	73	8 Cir. S.	3 N.	61.63	10 Nimb.	2 S. W.	29.38	29.28	29.15	29.60	15. Slight shower 5 P. M.
14	55	3 Cu. S.	3 W.	93	1 Cir.	2 N.	54.55	7 Cu. S.	0	29.10	29.20	29.29	29.70	16. Rain fall of yesterday and last night
15	55	2 Cir. S.	1 W.	60	4 Cu. S.	3 W.	53.57	5 Cu. S.	1 S.	29.26	29.26	29.10	29.75	17. Began raining 11 P. M.
16	53	4 Cu. S.	2 W.	60	4 Cu. S.	3 N.	49.57	5 Cu. S.	1 N.	29.26	29.20	29.25	29.60	18. Rain fall of last night
17	50	8 Cir. Cu.	2 W.	67	7 Cu. S.	3 W.	50.52	0	0	29.27	29.10	29.25	29.50	19. Thunder shower 9 P. M.
18	47	0 Cir.	1 N. E.	73	8 Cu. S.	2 E.	60.67	0 Nimb.	0 S.	29.25	29.24	29.27	29.53	20. Thin fall of last night
19	60	3 Cir. S.	2 E.	78	8 Cu. S.	3 S. W.	66.74	0 Nimb.	0 S.	29.29	29.29	29.29	29.81	21. Thin shower with sharp lightning
20	62	0 Cir. S.	1 N. E.	76	8 Cu. S.	3 W.	60.94	2 Cu. S.	0	29.24	29.29	29.44	29.82	22. 6:45 P. M. up to 8 P. M.; rain fall
21	56	4 Cir. S.	1 N. E.	67	0 Cir. Cu.	1 W.	50.66	0 Nimb.	0	29.50	29.53	29.53	29.82	23. Rain fall after 8 last night
22	59	8 Cir. S.	1 N. W.	67	2 Cir. Cu.	3 S.	74.73	10 Nimb.	2 S.	29.66	29.53	29.53	29.82	24. Thunder down last night to 3 P. M.
23	71	8 Cir. S.	1 S.	85	0 Cir. S.	2 S.	71.53	4 Cu. S.	3 S.	29.47	29.48	29.48	29.85	25. Thunder down last night to 3 P. M.
24	81	8 Cir. S.	1 S.	95	0 Cu. S.	3 S.	69.73	4 Cu. S.	1 S.	29.36	29.34	29.34	29.88	26. fr. P. rain fall last night
25	61	3 Cir. S.	1 N. E.	70	8 Cu. S.	1 E.	62.65	0 Nimb.	1 S.	29.34	29.34	29.34	29.80	27. Thunder shower 9 P. M.
26	65	7 Cu. S.	1 N. E.	71	8 Cu. S.	1 S.	64.65	0 Nimb.	1 N. E.	29.39	29.24	29.24	29.76	28. 6:45 P. M. up to 8 P. M.; rain fall
27	63	7 Cu. S.	1 N. E.	73	8 Cu. S.	1 N. W.	59.64	0 Nimb.	1 N. E.	29.16	29.17	29.17	29.70	29. Thunder down last night to 3 P. M.
28	49	0 Str.	2 N.	55	5 Cir. Cu.	3 N.	44.47	10 Cu. S.	1 N. E.	29.25	29.30	29.68	29.43	30. fr. P. rain fall last night
29	43	0	2 N.	50	5 Cir. Cu.	3 W.	44.45	8 Cir. S.	1 N.	29.50	29.45	29.45	29.78	31. Yesterday A. M. snow 1 in. on mountain.
30	47	0 Cu.	1 W.	57	7 Cu. S.	3 W.	47.95	0	0	29.45	29.44	29.46	29.76	Total rain fall 4.27 in.
31	48	0	1 W.	71	0	0	65.65	0	0	29.54	29.54	29.54	29.57	Total rain fall for May, 1883 5.36 in.
														Average temperature 58 1/2°

Meteorological Observations taken at Wilkes-Barre, Pa., for June, 1884, by E. L. Dana.
(Latitude 41° 14' 40.4" Longitude West 10° 10' 4.6")

Day.	THERMOMETER.			BAROMETER.			REMARKS.
	7 A. M.	9 P. M.	Average	7 A. M.	9 P. M.	Average	
1	54. 1 Cir. S.	1 W.	65.66%	29.67	29.61	29.63	.01 in.
2	57. 1 Cir. S.	1 W.	67.69	29.65	29.56	29.49	.49 in.
3	65. 0	1 W.	67.79	29.42	29.38	29.40	.29 in.
4	62. 0	1 W.	65.68%	29.43	29.43	29.47	.14 in.
5	64. 0	0	71.73%	29.47	29.46	29.49	.08 in.
6	66. 2 Cir. S.	0	71.73%	29.47	29.49	29.43	
7	62. 3 Cir. S.	0	71.73%	29.47	29.49	29.43	
8	62. 3 Cir. S.	0	74.74%	29.47	29.40	29.38	
9	70. 7 Cir. Cu.	1 W.	67.73%	29.41	29.30	29.30	
10	69. 5 Cir. S.	1 S. W.	72.75%	29.23	29.15	29.10	
11	63. 9 Cu. S.	2 N. E.	64.68%	29.15	29.22	29.43	
12	66. 10 Cu. S.	2 S. E.	64.68%	29.37	29.37	29.34	
13	68. 1 Cir. S.	2 S.	67.68%	29.38	29.33	29.36	
14	56. 7 Cir. S.	2 N. E.	65.65%	29.48	29.50	29.61	
15	53. 0	2 S. W.	58.60%	29.86	29.80	29.74	
16	51. 0	1 N. W.	58.60%	29.74	29.60	29.57	
17	60. 0	1 W.	69.71%	29.66	29.59	29.53	
18	62. 2 Cir. S.	1 N. W.	74.74%	29.50	29.44	29.39	
19	65. 0	5 Cu. S.	74.75%	29.37	29.34	29.36	
20	70. 1 Cir. S.	1 E.	75.70%	29.39	29.36	29.36	
21	70. 0	1 Cir.	74.70%	29.43	29.35	29.35	
22	70. 0	1 Cu.	74.70%	29.40	29.43	29.45	
23	69. 0	1 Cu.	77.76	29.40	29.49	29.45	
24	81. 0	3 Cu. S.	75.76	29.50	29.50	29.44	
25	76. 9 Cu. S.	3 W.	73.79	29.36	29.37	29.24	
26	57. 10 Str.	2 N. E.	63.61%	29.31	29.23	29.26	
27	57. 0	3 Cu. S.	65.65%	29.41	29.30	29.26	
28	59. 0	2 N. E.	66.67%	29.67	29.67	29.66	
29	60. 0	1 W.	68.69%	29.70	29.68	29.66	
30	61. 2 Cu. S.	1 E.	68.69%	29.64	29.58	29.58	
31	61. 2 Cir.	2 W.	75.73%	29.50	29.44	29.44	

Rain fall last night01 in.
 3. Shower this P. M. at 5 o'clock49 in.
 10. Shower of last night29 in.
 12. Rain fall last night14 in.
 13. Rain fall this P. M08 in.
 20. Very dry.
 21. Very dry.
 24. Slight shower 8:00 to 8:30 P. M.; heavy shower at 10 P. M.
 25. Rain fall last night .45; this A. M. .09; from 4 to 6 P. M. .69
 26. Coldest day of month; R. fall last night. 1.23 in.
 1.00 in.
 Total rain fall3.24 in.
 Total rain fall for June, 18838.13 in.
 Total rain fall for June, 18825.00 in.
 Average temperature 70%

Meteorological Observations taken at Wilkes-Barre, Pa., for July, 1884, by E. L. Dana.

(Latitude 41° 14' 40.4" Longitude West 1° 10' 4.6")

Day.	THERMOMETER.				Wind.	Clouds.	Average Temp. 9 P. M.	Clouds.	Wind.	BAROMETER.				REMARKS.
	7 A. M.	9 P. M.	7 A. M.	9 P. M.						7 A. M.	9 P. M.	7 A. M.	9 P. M.	
1	84	84	30.35	30.28	86	20	84	1	W.	1	W.	30.35	30.28	1. Rain at 9 P. M.
2	86	86	30.38	30.33	86	20	84	2	S. W.	0	W.	30.38	30.33	2. Rain fall last night03 in.
3	81	81	30.28	30.23	85	20	83	1	E.	0	S. W.	30.28	30.23	3. Thunder shower began 7:30 P. M.
4	83	83	30.36	30.31	84	20	84	1	E.	0	S.	30.36	30.31	4. Rain fall last night 1.04; shower P. M.
5	84	84	30.37	30.32	84	20	84	0	S.	0	S.	30.37	30.32	5. Rain fall last night 1.04; shower P. M.
6	84	84	30.37	30.32	84	20	84	0	S.	0	S.	30.37	30.32	6. Rain last evening 8:30 to 9 o'clock1.37 in.
7	84	84	30.37	30.32	84	20	84	0	S.	0	S.	30.37	30.32	7. Rain fall last night and this A. M.08 in.
8	84	84	30.37	30.32	84	20	84	0	S.	0	S.	30.37	30.32	8. Rain fall last night .29; shower F. M. .02 .31 in.
9	84	84	30.37	30.32	84	20	84	0	S.	0	S.	30.37	30.32	9. Rain fall last night .29; shower F. M. .02 .31 in.
10	84	84	30.37	30.32	84	20	84	0	S.	0	S.	30.37	30.32	10. Rain fall last night .29; shower F. M. .02 .31 in.
11	84	84	30.37	30.32	84	20	84	0	S.	0	S.	30.37	30.32	11. Rain fall last night .29; shower F. M. .02 .31 in.
12	84	84	30.37	30.32	84	20	84	0	S.	0	S.	30.37	30.32	12. Rain fall last night .29; shower F. M. .02 .31 in.
13	84	84	30.37	30.32	84	20	84	0	S.	0	S.	30.37	30.32	13. Rain fall last night .29; shower F. M. .02 .31 in.
14	84	84	30.37	30.32	84	20	84	0	S.	0	S.	30.37	30.32	14. Rain fall last night .29; shower F. M. .02 .31 in.
15	84	84	30.37	30.32	84	20	84	0	S.	0	S.	30.37	30.32	15. Rain fall last night .29; shower F. M. .02 .31 in.
16	84	84	30.37	30.32	84	20	84	0	S.	0	S.	30.37	30.32	16. Rain fall last night .29; shower F. M. .02 .31 in.
17	84	84	30.37	30.32	84	20	84	0	S.	0	S.	30.37	30.32	17. Rain fall last night .29; shower F. M. .02 .31 in.
18	84	84	30.37	30.32	84	20	84	0	S.	0	S.	30.37	30.32	18. Rain fall last night .29; shower F. M. .02 .31 in.
19	84	84	30.37	30.32	84	20	84	0	S.	0	S.	30.37	30.32	19. Rain fall last night .29; shower F. M. .02 .31 in.
20	84	84	30.37	30.32	84	20	84	0	S.	0	S.	30.37	30.32	20. Rain fall last night .29; shower F. M. .02 .31 in.
21	84	84	30.37	30.32	84	20	84	0	S.	0	S.	30.37	30.32	21. Rain fall last night .29; shower F. M. .02 .31 in.
22	84	84	30.37	30.32	84	20	84	0	S.	0	S.	30.37	30.32	22. Rain fall last night .29; shower F. M. .02 .31 in.
23	84	84	30.37	30.32	84	20	84	0	S.	0	S.	30.37	30.32	23. Rain fall last night .29; shower F. M. .02 .31 in.
24	84	84	30.37	30.32	84	20	84	0	S.	0	S.	30.37	30.32	24. Rain fall last night .29; shower F. M. .02 .31 in.
25	84	84	30.37	30.32	84	20	84	0	S.	0	S.	30.37	30.32	25. Rain fall last night .29; shower F. M. .02 .31 in.
26	84	84	30.37	30.32	84	20	84	0	S.	0	S.	30.37	30.32	26. Rain fall last night .29; shower F. M. .02 .31 in.
27	84	84	30.37	30.32	84	20	84	0	S.	0	S.	30.37	30.32	27. Rain fall last night .29; shower F. M. .02 .31 in.
28	84	84	30.37	30.32	84	20	84	0	S.	0	S.	30.37	30.32	28. Rain fall last night .29; shower F. M. .02 .31 in.
29	84	84	30.37	30.32	84	20	84	0	S.	0	S.	30.37	30.32	29. Rain fall last night .29; shower F. M. .02 .31 in.
30	84	84	30.37	30.32	84	20	84	0	S.	0	S.	30.37	30.32	30. Rain fall last night .29; shower F. M. .02 .31 in.
31	84	84	30.37	30.32	84	20	84	0	S.	0	S.	30.37	30.32	31. Rain fall last night .29; shower F. M. .02 .31 in.

Total rain fall for July, 1883 4.59 in.
 Total rain fall for July, 1884 6.41 in.
 Total rain fall for July, 1882 4.65 in.
 Average temperature 71 1/2

Meteorological Observations taken at Wilkes-Barre, Pa., for August, 1884, by E. L. Dana.

(Latitude 41° 14' 40.4" Longitude West 1° 10' 4.6')

Day.	THEOMETER.			BAROMETER.			REMARKS.
	W.	C.	A.	7 A.	9 P.	Air.	
1	62	0	1 W.	29.33	76.29	38.86	4. R. from 11:15 to 11:25 A. M., and 3:10 to 3:50 P. M.
2	59	0	1 W.	29.56	73.52	81.29	Rain last night .24 in.
3	75	3	1 W.	29.47	78.29	49.78	Raining at 9 P. M. .02 in.
4	75	3	2 S.	29.25	82.29	26.85	9. Raining at 9 P. M.
5	72	2	1 W.	29.30	82.29	30.84	10. At a few minutes past 2 o'clock a distinct shock of an earthquake. The movement, judging from the inclination given to a door and window near which I was seated, was from west south west to east north east, and lasted but three or four seconds. Rain last night and this A. M. to 12 M. .45 in.
6	63	2	1 W.	29.41	76.29	37.79	11. Rain fall last night .18 in.
7	64	7	1 W.	29.46	72.29	50.79	12. Shower 1:15 to 1 P. M.; rain fall .46 in.
8	64	7	1 W.	29.52	74.29	48.79	13. Rain fall last night .54 in.
9	59	3	1 W.	29.70	75.29	50.79	14. Rain fall this A. M. 37: P. M. .04 .41 in.
10	61	10	1 W.	29.44	73.29	50.79	15. Began raining 1 P. M.; total .11 in.
11	62	0	1 W.	29.75	72.29	71.79	Total rain fall for August, 1883 .341 in.
12	65	0	1 W.	29.70	74.29	64.82	Total rain fall for August, 1883 .84 in.
13	65	0	1 W.	29.75	72.29	71.79	Average temperature 71.5°
14	65	0	1 W.	29.70	74.29	64.82	
15	60	0	1 W.	29.70	75.29	67.82	
16	64	0	1 W.	29.72	78.29	67.82	
17	66	1	1 W.	29.74	79.29	62.82	
18	66	1	1 W.	29.67	78.29	65.84	
19	65	1	1 W.	29.63	77.29	62.85	
20	65	1	1 W.	29.66	77.29	62.85	
21	71	1	1 W.	29.58	83.29	53.84	
22	71	1	1 W.	29.54	81.29	50.84	
23	60	0	1 W.	29.50	80.29	45.84	
24	60	0	1 W.	29.50	80.29	45.84	
25	47	0	1 S.	29.63	76.29	64.75	
26	62	10	1 S.	29.85	67.29	75.70	
27	57	0	1 S.	29.59	74.29	64.70	
28	55	0	1 S.	29.71	71.29	70.60	
29	60	10	1 S.	29.60	71.29	57.70	
30	68	10	1 S.	29.33	76.29	20.28	
31	64	3	1 S.	29.29	70.29	30.31	
				29.38	74.29	36.77	

Meteorological Observations taken at Wilkes-Barre, Pa., for October, 1884, by E. L. Dana. (Latitude 41° 14' 40.4" Longitude West 1° 10' 4.6")									
THERMOMETER.					BAROMETER.				
Day.	7 A. M.	Clou.	Wind.	2 P. M.	Clou.	Average Temp.	Clou.	Wind.	Remarks.
1	67	3 Cir.	1 S. W.	79	3 Cir. Cu.	69 71	1 N. E.	7 A. M.	2. Rain 6:30 A. M. to 6 P. M.
2	58	10 Nimb.	0	54	10 Nimb.	53 54	1 N. E.	4 P. M.	3. K. fall last night .35; during the day .21.
3	53	10 Nimb.	2 W. W.	57	10 Str.	57 56	1 S.	7 A. M.	4. Rain fall in shower last night .56 in.
4	61	10 Nimb.	2 S. W.	72	0	74 69 1/2	2 W.	4 P. M.	5. Bright yellow sky at sunset.
5	62	3 Cir. Cu.	1 N. W.	69	0	56 66 3/4	2 N. W.	7 A. M.	6. Thunder shower 4:30 P. M. till 5:30.
6	55	7 Cir. S.	1 N. W.	73	1 Cir.	68 65	0	4 P. M.	8. Frost last night; rain fall last night .03 in.
7	58	5 Cu. F. g.	1 S. W.	65	5 Cir.	57 66 1/2	1 W.	7 A. M.	9. Rain of last evening and yesterday .07 in.
8	51	4 Cir.	1 N. W.	71	4 Cir.	59 66	1 W.	4 P. M.	12. Rain fall last night .09 in.
9	42	0	2 N. E.	51	0	43 44 1/2	3 N.	7 A. M.	18. Rain fall last night .09 in.
10	37	0 Fog.	1 N. W.	61	0	50 49 1/2	0	4 P. M.	19. White frost last night.
11	40	0 Fog.	1 S. W.	69	6 Cir. S.	50 49 1/2	1 S. W.	7 A. M.	20. River very low for a month past.
12	55	10 Cir. S.	1 S. W.	71	9 Cir. S.	57 55 1/2	2 W.	4 P. M.	22. Rain began 2 P. M.
13	63	8 Cir.	1 S. W.	69	1 Cir.	64 63 1/2	0	7 A. M.	23. Rain fall of yesterday and last night .30 in.
14	40	1 Cir.	1 N. W.	50	1 Cir.	44 46	0	4 P. M.	24. Min. Temp. last night .28; heavy frost.
15	36	8 Cir.	1 N. W.	45	0	44 42 1/2	1 N.	7 A. M.	25. Raining at 9 P. M.
16	47	0	2 S. W.	62	4 Cir. S.	58 58 1/2	3 W.	4 P. M.	26. Rain fall last night .21; to-day .09
17	56	0	2 S. W.	69	9 Cu. S.	49 54	3 W.	7 A. M.	27. Raining at 9 P. M.
18	47	0	3 S. W.	49	5 Cu.	38 43	1 N. E.	4 P. M.	28. Rain fall last night .85; to-day .05
19	44	0	1 S. W.	61	3 Cir.	55 51 1/2	0	7 A. M.	29. Rain fall last night .04 in.
20	44	0	1 W.	70	0	52 54 1/2	2 W.	4 P. M.	30. K. last night .04; sprinkle of rain 9 P. M.
21	42	0 Fog.	1 W.	75	0	61 59 1/2	0	7 A. M.	Total rain fall
22	62	1 Cir.	3 W.	67	10 Nimb.	56 63 1/2	1 S.	4 P. M.	Total rain fall for October, 1883 3.44 in.
23	44	0	3 W.	43	8 Nimb.	38 40 1/2	2 W.	7 A. M.	Average temperature 53 1/2
24	37	0	1 N. W.	49	4 Cir. Cu.	42 42 1/2	0	4 P. M.	
25	41	8 Cu. S.	1 N. W.	47	2 Cu.	30 40	0	7 A. M.	
26	31	0	1 S. W.	48	3 Cir. S.	45 42 1/2	2 S.	4 P. M.	
27	49	0	1 S. W.	63	8 Cu.	54 55	1 E.	7 A. M.	
28	56	10 Nimb.	1 S. W.	56	10 Str.	46 51 1/2	2 N. W.	4 P. M.	
29	35	1 Str.	1 W.	54	10 Str.	48 46 1/2	2 N. W.	7 A. M.	
30	44	10 Nimb.	2 N. E.	48	10 Nimb.	44 45	1 N. E.	4 P. M.	
31	45	10 Nimb.	1 N.	51	8 Cir.	48 48	1 N. W.	7 A. M.	

Meteorological Observations taken at Wilkes-Barre, Pa., for November, 1884, by E. L. Dana.

(Latitude 41° 44' 40.4" Longitude West 1° 10' 4.6")

Day.	THERMOMETER.				BAROMETER.				REMARKS.
	7 A. M.	9 P. M.	Average	Wind.	7 A. M.	9 P. M.	Average	Wind.	
1	7 Cir. Cu.	1 S. W.	53 52 54	2 S. W.	29.50	29.48	29.40	76	3. Lowest temperature last night 36°. Began raining 10 P. M.
2	8 Cir. S.	1 N.	39 43 34	1 N.	29.60	29.60	29.79	78	4. K. tall last night and to-day till 1 P. M. .35 in.
3	3a 0 Nimb.	1 N. E.	43 42 4	1 W.	29.93	29.85	29.80	79	5. Rain fall last evening.
4	4 3 Cu.	3 W.	59 54	4 E.	29.70	29.48	29.44	78	7. Lowest temperature last evening 27°
5	6 35 7 Cu.	3 W.	39 42 4	3 W.	29.80	29.20	29.47	81	9. Minimum last night 23
6	7 31 0 Cu.	2 W. S.	33 34 4	3 W.	29.60	29.66	29.73	88	18. N. E.
7	8 31 0 Cu.	2 W.	46 43 4	3 W.	29.74	29.58	29.56	71	19. Began snowing slightly at 8 P. M. from N. E.
8	9 43 5 Cu.	2 W.	34 38 2	2 W.	29.83	29.67	29.80	77	19. Snow at 8 A. M., melted .39, rain 11 and at 9 P. M.
9	10 32 0	1 W.	37 37 6	2 W.	29.85	29.75	29.75	74	20. Rain fall yesterday and last night.30 in.
10	11 36 2 Cir.	3 E.	43 43 4	3 E.	29.77	29.75	29.63	73	23. Rain 2 P. M., heavy at 6 P. M. and wind high.
11	12 44 10 Str.	1 N.	48 40 4	1 W.	29.50	29.60	29.67	67	24. Rain fall 2 P. M. till midnight, river 17 + 2.11 in.
12	13 29 8 Str.	1 W.	45 44 4	0	29.68	29.40	29.53	81	25. Minimum temp. last night 17°
13	14 38 0	0	45 43 8	0	29.56	29.40	29.53	81	27. Thanks giving day, flurry of snow in A. M.
14	15 30 0 Str.	0	50 39 4	0	29.69	29.68	29.79	78	28. Began raining 5 P. M.
15	16 31 7 Str.	1 W.	37 36 4	1 N. W.	29.67	29.59	29.43	73	28. Rain fall last night.37 in.
16	17 35 10 Str. Cu.	1 N. W.	38 41 2	1 W.	29.36	29.50	29.53	77	29. Slight flurry of snow this evening.
17	18 27 3 Cir. Cu.	3 N. E.	31 30 2	2 N. E.	29.70	29.70	29.72	77	30. Total rain fall for November, 1883. 4.57 in.
18	19 26 10 Nimb.	2 N. E.	34 35	1 N. E.	29.73	29.63	29.66	75	Average temperature 37°
19	20 34 10 Nimb.	1 W.	34 35	4 S. W.	29.87	29.87	29.67	75	The day at Wilkes-Barre during the low water period of this and the inches below the low water mark on the first pier of the bridge. This lowering of the surface of the river in front of the city may be due in part to diminished rain fall or to the water passing more rapidly on account of the diminished forest area, but is probably mostly due to the channel cut through riffles below the island in order to aid navigation.
20	21 28 0 Fog.	1 W.	41 40 4	2 S. W.	29.80	29.83	29.80	76	
21	22 53 10 Str.	3 E.	53 54 4	4 S.	29.91	29.83	29.80	76	
22	23 53 10 Str.	3 W.	54 54 4	4 W.	29.56	29.28	29.10	66	
23	24 53 10 Str.	4 W.	54 54 4	4 W.	29.36	29.38	29.59	80	
24	25 53 10 Str.	4 W.	54 54 4	4 W.	29.63	29.48	29.36	77	
25	26 53 10 Str.	4 W.	56 56 4	3 W.	29.20	29.24	29.36	77	
26	27 53 10 Str.	3 S. W.	56 56 4	3 W.	29.20	29.24	29.36	77	
27	28 53 10 Str.	3 S. W.	56 56 4	3 W.	29.20	29.24	29.36	77	
28	29 53 10 Str.	3 S. W.	56 56 4	3 W.	29.20	29.24	29.36	77	
29	30 53 10 Str.	3 S. W.	56 56 4	3 W.	29.20	29.24	29.36	77	
30	31 53 10 Str.	3 S. W.	56 56 4	3 W.	29.20	29.24	29.36	77	

Meteorological Observations taken at Wilkes-Barre, Pa., for December, 1884, by E. L. Dana. (Latitude 41° 14' 40.4" Longitude West 1° 10' 4.6")												
Day	THERMOMETER.				Clouds	Wind	Average Temp.	Clouds	Wind	Barometer.	REMARKS.	
	7 A. M.	9 A. M.	1 P. M.	4 P. M.								
1	33 to Cir.	E.	34 to Cir. Cu.	1 W.	31 32 34	10 Nimb.	1 S. W.	29.63	74 29.66	81 29.67	75	1. Snowing at 8 A. M.
2	31 0	1 N.	42 0	1 W.	28 32 34	0	1 S. W.	29.70	76 29.66	76 29.66	75	6. Rain began 11 A. M.; at 4 P. M. rain fall .35 in.
3	24 0	1 W.	41 4 Cir. S.	2 S. W.	35 33 34	5 Cir.	1 S. W.	29.50	78 29.40	78 29.43	78	7. Rain fall last night with high wind . . . 1.10 in.
4	26 0	1 W.	48 0	2 S. W.	34 35 34	6 Cir.	1 S. W.	29.64	76 29.59	74 29.60	78	12. Snow 1 1/2 in.; melted .40; raining 8 A. M. .40 in.
5	30 0	1 W.	51 0	1 W.	35 37 34	0	0	29.67	75 29.60	77 29.66	75	13. Rain fall and snow last evening and yesterday .15 in.
6	33 to Cir. S.	1 W.	49 to Nimb.	1 E. W.	58 49 54	10 Nimb.	2 S. W.	29.57	76 29.41	82 29.00	79	14. Raining at 7 and 9 P. M.
7	50 8 Cu.	3 S. W.	57 9 Cu.	4 S. W.	49 51 4	10 Str.	4 S. W.	29.10	79 29.12	81 29.20	82	15. Rain fall last night .83 in.
8	45 3 Cu.	3 W.	47 8 Cu.	3 W.	42 44 5	5 Cu.	2 S. W.	29.21	77 29.49	78 29.66	78	16. Snow to A. M.; snow fell 3 in.
9	40 4 Cu.	3 S. W.	41 9 Cu. S.	3 W.	36 39 4	4 Cu.	3 N. W.	29.46	78 29.38	72 29.60	77	17. Snow melted.
10	34 to Str.	2 W.	44 8 Cir. S.	2 S. W.	39 39 10	10 Str.	2 S. W.	29.74	72 29.66	76 29.66	76	18. Snow melted.
11	41 to Nimb.	1 N.	44 to Str.	2 W.	39 40 4	10 Str.	1 N.	29.50	79 29.50	76 29.58	76	19. Minimum temperature last night -9°.
12	31 to Cir. S.	1 N.	32 to Str.	2 N.	30 30 4	10 Str.	1 N.	29.53	73 29.45	76 29.66	77	20. Minimum temperature last night -9°.
13	30 to Str.	1 N.	33 to Str.	1 S.	31 31 1	10 Str.	1 S.	29.70	73 29.80	85 29.60	83	21. Snow 2 1/4 in.; melted.
14	26 to Str.	2 S. W.	46 8 Cu.	3 W.	35 38 4	0	0	29.10	80 29.20	82 29.40	78	22. Rain fall yesterday; last night .77 up to .90 in.
15	26 2 Cu.	1 S.	32 0 Nimb.	1 N.	30 29 4	0	3 W.	29.66	80 29.54	82 29.50	82	23. Snow 2 1/4 in.
16	26 to Str.	1 S.	26 9 Nimb.	1 N.	24 28 4	10 Str.	1 N.	29.40	75 29.38	80 29.44	76	24. Snow fall 3 1/4 in.; melted.
17	30 to Str.	2 N.	17 to Str.	2 N.	10 13 4	0	3 N.	29.66	79 29.66	77 29.66	73	25. At 4.48 P. M. the ice in river moved off, the water mark. Ice 1 ft. thick. Water rose to 12 1/2 ft. Ice continued moving until 3 A. M., of the 26th, when a gorge was formed and ice stopped. Water at 9 1/2 ft. on pier.
18	18 to Str.	2 N.	3 0	2 N.	12 16 4	10 Str.	2 S.	30.08	75 30.00	72 29.90	74	26. Snow last night 1 1/2 in.; melted.
19	0 0	2 N.	6 0	2 N.	12 16 4	10 Str.	2 S.	29.66	79 29.66	77 29.66	73	27. Ice on Br. pier 9 ft. Rain last night .16 in.
20	5 0	2 N.	34 to Nimb.	1 W.	34 31 1	10 Nimb.	0 N. W.	29.66	79 29.66	77 29.66	73	28. Total rain fall .37 in.
21	22 to Nimb.	1 S. E.	42 to Nimb. S.	1 W.	40 38 4	0	0	30.00	68 30.04	70 30.04	73	29. Total rain fall for December, 1884, 3.72 in.
22	33 to Str.	1 S. E.	28 8 Cir.	2 S. W.	27 22 4	2 Cir.	1 S. W.	29.70	79 29.86	80 29.86	79	30. Av. temp. 31° Av. temp. Dec., 48.3, 3a°
23	18 2 Cir.	1 W.	25 to Str.	1 S. W.	27 23 4	10 Str.	1 S. W.	29.90	73 29.95	77 29.98	74	
24	15 to Nimb.	1 N.	17 to Str.	2 N.	12 15 4	0	1 N.	30.05	68 30.05	77 29.98	74	
25	14 to Cir. S.	1 N.	19 0	2 N.	12 15 4	0	1 N.	30.05	68 30.04	70 30.04	73	
26	8 0	1 N.	19 0	2 N.	12 15 4	0	1 N.	30.00	68 30.04	70 30.04	73	
27	12 to Str.	1 W.	29 to Str.	1 S. W.	31 25 4	10 Str. S.	1 S.	30.00	73 29.94	77 29.98	74	
28	33 to Nimb.	2 S. W.	40 to Str.	1 S. W.	35 35 4	10 Str. S.	1 S.	29.95	78 29.84	82 29.95	84	
29	33 to Cir. S.	1 S.	44 4 Cir.	1 S.	37 37 4	Misty	1 S. W.	29.90	80 29.80	82 29.70	84	
30	32 Fog	1 S.	37 Misty	1 S.	33 33 4	Misty	1 S. W.	29.53	80 29.38	84 29.38	84	
31	35	1 S.	50 4 Cu. S.	1 E.	54 48 4	8 Nimb.	2 S.	29.53	80 29.38	84 29.38	84	

Meteorological Observations taken at Wilkes-Barre, Pa., for January, 1885, by E. L. Dana. (Latitude 41° 14' 40.4" Longitude West 10° 10' 4.6")														
Day.	THERMOMETER.						BAROMETER.						REMARKS.	
	7 A. M.	Clouds.	Wind.	3 P. M.	Clouds.	Wind.	Average Temp.	Clouds.	Wind.	7 A. M.	3 P. M.	9 P. M.		Att. Th.
1	38	to Str.	3 W.	34	9 Nimb.	2 N.	22.09	5 Cir.	3 N.	29.40	29.40	29.30	68	
2	38	0	2 N. W.	15	4 Cir. Cu.	2 S. W.	10.13	0	1 N. W.	29.50	29.47	29.30	73	Snow fall 1/8 in.; melted with rain09 in.
3	35	0	1 S.	21	2 Cir.	2 S. W.	17.15	3 Cir.	1 W.	30.22	30.19	30.10	70	1. Ice moved but stopped again; water 2 1/2 feet +
4	31	5 Cir.	1 W.	31	10 Cir. S.	2 S. W.	23.82	0	1 S.	29.26	29.23	29.12	80	3. Minimum last night 3; water and ice 20 +
5	37	0 Nimb.	1 S. W.	41	10 Cir. S.	2 S. W.	35.31	10 Nimb.	0	29.67	29.63	29.53	72	Began raining at about 10 P. M.
6	35	0	2 S. W.	42	9 Str.	2 S. W.	42.40	10 Nimb.	0	29.18	29.15	29.05	83	5. R. fall last night .91; this A. M. .091.00 in.
7	38	5 Cu.	2 S. W.	36	10 Cu. S.	2 W.	33.35	8 Nimb.	3 S. W.	28.94	28.91	28.80	78	6. R. fall last night .0404 in.
8	33	6 Cu.	2 W.	39	5 Cir. S.	2 S. W.	32.34	0	0	29.48	29.45	29.35	77	7. R. fall last night .98; snowing A. M. .041.02 in.
9	27	0	0	50	9 Cu. S.	2 S. W.	40.39	9 Nimb.	2 W.	29.25	29.22	29.12	77	13. Snow in evening.
10	23	1 Cir.	2 N. W.	26	0	3 N.	19.24	0	0	29.58	29.55	29.45	77	14. Snow 1/2 in. last night.
11	23	3 Cir. S.	3 N. W.	38	10 Nb. R.	2 S.	36.33	10 Nimb.	0	29.62	29.59	29.49	76	15. Snow 3 in.; raining slightly; snow melted
12	29	9 Nimb.	4 S.	40	8 Cu. S.	4 W.	30.38	10 Nimb.	2 W.	28.93	28.90	28.80	77	.41, also in P. M. .1960 in.
13	25	9 Nimb.	2 N.	26	2 Cir.	2 S. W.	22.20	10 Nimb.	1 W.	29.80	29.77	29.68	76	16. Rain fall to-day up to 5 P. M.72 in.
14	10	0	0	0	0	0	0	0	0	30.08	30.05	30.07	78	17. Snow fall 4 in.; melted .4444 in.
15	27	10 Nimb.	1 W.	39	10 Nimb.	1 S.	35.34	10 Nimb.	1 S.	29.80	29.77	29.68	80	23. Snow last night 1 1/2 in.; melted .1818 in.
16	32	10 Nimb.	1 S. E.	35	10 Nimb.	1 S.	36.34	10 Nimb.	0	29.50	29.47	29.37	84	28. Snow last night 1 1/2 in.; melted .13; ice on river 11 feet +
17	37	10 Cu.	4 S. W.	23	5 Cu. S.	3 S. W.	19.42	10 Nimb.	4 W.	28.66	28.63	28.54	76	
18	34	3 Cu.	3 S. W.	19	9 Cir. S.	2 S. W.	15.15	0	2 W.	29.82	29.79	29.70	75	
19	18	5 Cir. S.	2 W.	22	8 Cir. S.	2 S. W.	22.18	0	1 S. W.	29.82	29.79	29.70	75	
20	13	0	1 W.	22	4 Cir. S.	2 S. W.	26.23	1 Str.	0	29.07	29.04	29.00	79	
21	15	0	0	20	8 Cir. S.	3 W.	26.23	0	0	29.80	29.77	29.68	73	Total rain fall4.99 in.
22	4	1 Cir.	2 N.	11	2 Cir.	3 N. W.	11.14	2 Str.	4 W.	29.40	29.37	29.28	72	Average temperature 23 3/10
23	5	0	1 W.	22	10 Cir. S.	3 N. W.	10.83	10 Nimb.	1 W.	29.85	29.82	29.73	64	The average temperature for January, 1884, was 25 5/10
24	21	0 Nimb.	1 S.	40	10 Str.	1 S. W.	35.19	10 Nimb.	0	29.27	29.24	29.14	78	Rain fall January, 1884, 4.66 in.
25	31	10 Str.	1 S.	38	10 Cu. S.	2 S. W.	30.32	9 Cir.	0	29.30	29.27	29.18	80	
26	17	1 Cir.	1 W.	22	10 Cu. S.	3 S. W.	11.15	0	2 N. W.	29.20	29.17	29.08	76	
27	11	0	1 W.	22	0	3 S. W.	9.75	0	2 S.	29.20	29.17	29.08	74	
28	25	10 Nimb.	1 S. W.	13	5 Cir. Cu.	1 N. E.	1.9	0	1 N. W.	29.04	28.99	28.90	75	
29	10	8 Str.	1 W.	20	0	1 W.	12.84	9 Nimb.	1 S. W.	29.83	29.80	29.71	68	
30	9	0	1 W.	20	5 Str.	1 W.	22.24	0	1 S.	29.36	29.33	29.24	78	
31	13	1 Str.	1 S. W.	28	1 Cir. S.	1 W.	25.22	9 Cir. S.	1 N.	29.73	29.70	29.60	79	

Meteorological Observations taken at Wilkes-Barre, Pa., for February, 1885, by E. L. Dana.

(Latitude 41° 14' 40.4" Longitude West 1° 10' 4.6")

Day	THERMOMETER.						BAROMETER.						REMARKS.	
	7 A. M.	Cluds.	Wind.	2 P. M.	Cluds.	Wind.	Average Temp.	Cluds.	Wind.	7 A. M.	2 P. M.	9 P. M.		Att. Th.
1	26	10 Nimb.	1 W.	36	8 Cu.	1 E. W.	14.22	0	2 E.	29.26	29.23	29.49	75	1. Slight snow 1/2 in.; melted.
2	2	0	1 N. W.	16	0 Nimb.	1 S. W.	8.86	10	1 S. W.	29.64	29.56	29.50	70	3. Snow last night 1 in.; melted.
3	9	10 Cu. S.	1 N. W.	25	0 Clr.	1 S. W.	21.18	6	1 S. W.	29.39	29.36	29.30	76	9. Rain and sleet 2 P. M.
4	25	6 Clr. S.	1 S. W.	40	2 Clr. S.	1 S. E.	33.35	0	1 S. W.	29.15	28.96	28.90	82	10. Rain and snow squalls; Rain fall last night
5	30	10 Str.	2 N.	33	10 Cu. S.	1 S. E.	21.96	10	2 N.	29.10	29.16	29.16	73	11. Minimum temperature last night -11°
6	11	4 Cu. S.	2 N.	13	0	1 N.	8.86	0	1 N.	29.33	29.35	29.47	73	12. Slight snow last night 1 in.
7	4	0	1 N. W.	17	9 Clr. S.	1 N.	21.15	10	1 N.	29.60	29.60	29.46	70	13. Snow melted.
8	25	10 Clr. S.	1 S. W.	33	9 Clr. S.	1 W.	28.28	10	1 N.	29.36	29.43	29.59	75	14. Snowing at 9 P. M.
9	19	10 Str.	2 N.	33	10 Nimb.	1 N.	36.31	10	1 E.	29.48	29.30	29.00	76	15. About 1 in. of snow.
10	37	10 Nimb.	3 W.	26	8 Cu. S.	3 W.	6.18	0	4 W.	28.84	28.90	29.16	74	16. Snowing A. M. 8 in. deep; melted 1.02;
11	5	0	1 W. E.	23	0	3 W. W.	15.19	1	1 N.	29.50	29.56	29.70	74	17. at 4 P. M. 1.05.
12	9	6 Clr. S.	1 N. E.	20	10 Clr.	1 N.	14.14	0	1 N.	29.74	29.57	29.57	74	18. Snow 4 in. A. M.; melted.
13	7	0	1 S.	28	5 Cu.	1 N. E.	21.94	0	1 N. E.	29.68	29.60	29.58	79	19. Lower temperature last night -16°
14	7	0	0	30	0	1 N. E.	22.19	0	1 N. E.	29.55	29.48	29.48	74	20. Snow fell last night 3 1/2 in.; melted.
15	5	0	0	30	0	2 S. E.	36.99	0	1 N. W.	29.00	29.57	29.60	78	21. Snowing slightly at 7 A. M.
16	30	10 Nimb.	3 N. E.	34	10 Nimb.	1 S. W.	5.15	8	1 S. W.	29.20	29.10	29.15	76	Total rain fall for February, 1884, 3.54 in.
17	1	0	1 S. W.	11	0	1 S. W.	14.15	5	1 S. W.	29.40	29.46	29.48	70	Average temperature 17°
18	9	10 Nimb.	1 S. E.	25	0	1 S. W.	4.64	3	1 S. W.	29.69	29.41	29.54	75	Depth of snow fall during month 19 in.
19	0	2 Clr. S.	1 W.	19	4 Clr. Cu.	2 N. W.	3.24	0	1 W.	29.53	29.45	29.41	72	
20	7	3 Str.	1 S.	12	5 Clr. Cu.	1 S. W.	3.62	0	0	29.44	29.45	29.55	72	
21	3	9 Str.	2 S.	17	0	1 S. W.	9.44	0	0	29.61	29.60	29.68	78	
22	13	0	1 N.	13	0	1 N.	9.44	8	0	29.76	29.64	29.74	70	
23	13	8 Cu. S.	2 S.	24	0	1 N.	13.15	0	1 N.	29.85	29.88	29.89	70	
24	5	0	1 N.	24	0	1 N. E.	21.15	9	1 N.	29.92	29.89	29.78	60	
25	19	7 Clr.	1 E.	32	0	1 N.	18.18	0	1 N.	29.60	29.60	29.67	80	
26	3	0	1 N. W.	24	6 Clr.	1 W.	23.04	5	1 W.	29.61	29.61	29.54	81	
27	24	10 Clr.	1 N. W.	31	4 Clr.	1 S. W.	31.31	10	0	29.46	29.43	29.50	80	
28	30	10 Clr.	1 E.	39	0	1 S.	34.34	4	1 S. W.	29.60	29.60	29.50	78	

METEOROLOGICAL OBSERVATIONS.

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Meteorological Observations taken at Wilkes-Barre, Pa., for March, 1885, by E. L. Dana.

(Latitude 41° 14' 40.4" Longitude West 1° 10' 4.6")

Day.	THERMOMETER.			BAROMETER.			REMARKS.
	7 A. M.	9 P. M.	Average	7 A. M.	9 P. M.	Air. Th.	
1							
2	4 Cir. S.	2 S.	33.35	29.20	28.93	70.29	
3	8 Cu. S.	2 S. W.	37.30	29.10	28.92	70.29	
4	2 Cir. S.	1 N.	29.26	29.10	28.92	70.29	
5	8 Cu. S.	2 S. W.	34.34	29.40	29.34	70.39	
6	6 Cu. S.	1 N. E.	28.30	29.30	29.24	70.39	
7	2 Cir. S.	1 N.	27.26	29.60	29.60	70.39	
8	10 Nimb.	1 N. E.	27.26	29.70	29.67	70.39	
9	2 Cir. S.	1 N.	13.14	29.50	29.43	70.39	
10	4	3 W.	20.17	29.58	29.54	70.39	
11	0	3 W.	20.17	29.70	29.54	70.39	
12	0	3 W.	14.16	29.70	29.54	70.39	
13	0	3 W.	14.16	29.44	29.50	70.39	
14	0	3 W.	20.17	29.85	29.76	70.39	
15	0	3 W.	13.19	29.53	29.60	70.39	
16	0	3 W.	19.15	29.70	29.60	70.39	
17	5 Cu. S.	1 N. E.	29.26	29.70	29.58	70.39	
18	10 Nimb.	1 N. E.	19.22	29.55	29.50	70.39	
19	0	2 W.	19.22	29.10	29.10	70.39	
20	0	2 W.	6.77	29.30	29.35	70.39	
21	0	2 W.	13.14	29.70	29.35	70.39	
22	0	2 W.	8.11	29.70	29.64	70.39	
23	0	2 W.	10.10	29.53	29.40	70.39	
24	0	2 W.	10.10	29.20	29.16	70.39	
25	0	2 W.	10.10	29.60	29.60	70.39	
26	0	2 W.	10.10	29.72	29.58	70.39	
27	0	2 W.	14.14	29.68	29.64	70.39	
28	0	2 W.	30.24	29.68	29.65	70.39	
29	0	2 W.	21.24	29.70	29.71	70.39	
30	0	2 W.	34.34	29.70	29.60	70.39	
31	0	2 W.	27.31	29.46	29.36	70.39	
32	0	2 W.	27.31	29.48	29.50	70.39	
33	0	2 W.	23.25	29.56	29.60	70.39	
34	0	2 W.	23.25	29.87	29.74	70.39	
35	0	2 W.	36.33	29.64	29.55	70.39	
36	0	2 W.	47.46	29.64	29.55	70.39	

1. Rain fall up to 3 P. M. from 10.30 A. M. .24 in.
 2. Snow spual; fell 1/4 in.
 7. Snow 1/2 in.; 2 in. with previous falls. .29 in.
 13. At 6.30 A. M. therm. at P.; snow at 9 P. M. 1/2 in.
 15. Snow 1/2 in.
 16. Eclipse of sun, visible here, annular in west.
 20. Minimum last night, zero.
 21. " " " "
 22. " " " "
 27. Raining slightly at 9 P. M.
 28. Snowing at 9 P. M.
 29. Snow last night, 3 1/2 in.; melted .28 in.
 Total snow 5 in.
 Rain fall
 Average temperature 23 1/2.

Meteorological Observations taken at Wilkes-Barre, Pa., for April, 1885, by E. L. Dana.

(Latitude 41° 14' 40.4" Longitude West 1° 10' 4.6")

Day.	THERMOMETER.				BAROMETER.				REMARKS.
	7 A. M.	9 A. M.	9 P. M.	Average	7 A. M.	9 A. M.	9 P. M.	Air Th.	
1	36	53	W.	41.41	29.79	29.70	29.85	83	9. Rain fall last night .13; River broke up this A. M.; stopped 5 P. M.
2	39	59	S.	36.38	29.78	29.70	29.84	80	10. Rain fall last night .13 in.
3	47	66	S. Cir. Cu.	39.47	29.76	29.68	29.85	80	11. First robin and blue bird of season. Ice moved off 5 P. M.
4	37	51	W.	29.30	29.70	29.80	79	30	12. 3 in. snow fell this morning. Rain last night .83; snow .29
5	44	59	W. Cir. Cu.	45.39	29.74	29.84	80	74	13. Begin raining at 8:15 P. M., with thunder and lightning.
6	36	45	W.	34.37	29.75	29.70	29.80	79	14. Rain fall last night .16 in.
7	30	52	W.	43.42	29.75	29.70	29.80	79	15. Rain fall last night .16 in.
8	36	55	W.	31.38	29.75	29.70	29.80	79	16. Snowing at 12 M. and 2 P. M.; slight rain 9 P. M.
9	21	32	W.	27.26	29.73	29.63	29.81	80	17. Rain of last night .14 in.
10	26	41	W.	32.32	29.70	29.65	29.80	80	18. Snow and rain in A. M.; melted .05 in.
11	27	49	W.	32.32	29.68	29.60	29.81	80	19. Slight rain at 6 P. M. and 8 P. M.
12	34	57	W. Cir. Cu.	33.34	29.65	29.55	29.80	80	20. Thunder shower 7:30 P. M., until 8 P. M.
13	34	57	W. Cir. Cu.	33.34	29.65	29.55	29.80	80	21. Rain fall last night .21 in.
14	25	37	W.	31.31	29.68	29.70	29.78	78	22. Ice formed last night.
15	30	47	W.	35.37	29.68	29.70	29.78	78	23. Total rain fall for April, 1885. 2.32 in.
16	38	54	W.	43.42	29.68	29.70	29.78	78	24. Average temperature 44°
17	28	47	W.	45.46	29.68	29.70	29.78	78	
18	35	59	W.	49.45	29.68	29.70	29.78	78	
19	36	68	W.	54.53	29.68	29.70	29.78	78	
20	36	75	W.	61.59	29.68	29.70	29.78	78	
21	41	81	W.	67.07	29.68	29.70	29.78	78	
22	52	84	W.	67.07	29.68	29.70	29.78	78	
23	53	84	W.	67.07	29.68	29.70	29.78	78	
24	55	84	W.	67.07	29.68	29.70	29.78	78	
25	50	84	W.	67.07	29.68	29.70	29.78	78	
26	48	84	W.	67.07	29.68	29.70	29.78	78	
27	48	84	W.	67.07	29.68	29.70	29.78	78	
28	47	84	W.	67.07	29.68	29.70	29.78	78	
29	34	84	W.	67.07	29.68	29.70	29.78	78	
30	40	84	W.	67.07	29.68	29.70	29.78	78	

METEOROLOGICAL OBSERVATIONS.

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Meteorological Observations taken at Wilkes-Barre, Pa., for May, 1885, by E. L. Dana.

(Latitude 41° 14' 40.4" Longitude West 1° 10' 4.6")

Day.	THERMOMETER.				BAROMETER.				REMARKS.
	7 A. M.	9 P. M.	Average	Wind.	7 A. M.	9 P. M.	Average	Wind.	
1	49	42	43	N.	30.23	29.28	29.20	78	1. Raining all A. M. and P. M. Rain fall, .69 in.
2	45	40	43	N. W.	29.24	29.30	29.40	76	4. Min. last night, 34°; raining at 8 A. M.
3	36	48	41	N. W.	29.30	29.43	29.45	78	8. Rain fall yesterday and last night 1.02;
4	40	55	46	N. W.	29.40	29.40	29.48	78	to-day .07
5	38	65	51	N. W.	29.50	29.48	29.40	80	9. White frost this morning.
6	51	75	62	N. W.	29.33	29.41	29.40	80	10. Minimum last night, 33°
7	53	80	66	N. W.	29.49	29.34	29.42	80	12. Min. last night 32°; white frost A. M.
8	54	75	64	N. W.	29.37	29.37	29.37	77	14. Sprinkle of rain at 1 P. M.
9	43	56	44	N. W.	29.25	29.16	29.17	75	20. Thunder shower 4:30 P. M. Rain fall .25 in.
10	43	56	44	N. W.	29.28	29.30	29.30	76	23. Rain fall last night .16 in.
11	43	56	44	N. W.	29.32	29.30	29.30	73	29. Rain most of day slightly; Rain fall .05 in.
12	38	64	51	N. W.	29.05	29.60	29.60	76	30. Rain this A. M. .12 in.
13	54	74	64	N. E.	29.06	29.60	29.63	76	31. Rain 12:20 and 2 P. M. .22; last night .05
14	51	74	62	N. E.	29.55	29.50	29.50	76	.27 in.
15	47	70	63	N. W.	29.60	29.57	29.50	78	Total rain fall .2.63 in.
16	53	78	65	N. W.	29.74	29.66	29.70	80	Av. temp. 58° Av. temp. May, 1884, 59 1/2°
17	55	80	67	N. W.	29.67	29.56	29.53	78	Total rain fall for May, 1884, 4.27 in.
18	49	76	62	N. W.	29.47	29.35	29.34	77	
19	53	80	66	N. W.	29.40	29.40	29.30	82	
20	61	85	73	N. E.	29.40	29.40	29.30	82	
21	60	83	71	N. E.	29.57	29.52	29.60	78	
22	60	80	70	N. E.	29.65	29.62	29.60	78	
23	50	77	63	N. W.	29.65	29.65	29.65	77	
24	64	80	72	N. E.	29.50	29.50	29.50	76	
25	64	80	72	N. E.	29.60	29.59	29.55	74	
26	64	80	72	N. E.	29.47	29.40	29.37	74	
27	56	74	64	N. E.	29.50	29.50	29.50	76	
28	56	74	64	N. E.	29.46	29.48	29.50	74	
29	56	74	64	N. E.	29.46	29.48	29.50	74	
30	57	75	66	N. E.	29.54	29.46	29.40	78	
31	60	78	69	N. E.	29.34	29.30	29.27	72	
					29.18	29.17	29.18	77	

Meteorological Observations taken at Wilkes-Barre, Pa., for June, 1885, by E. L. Dana.

(Latitude 41° 14' 40.4" Longitude West 1° 10' 4.6')

Day	THERMOMETER.				BAROMETER.				REMARKS.
	7 A. M.	Clouds.	Wind.	9 P. M.	Average Temp.	Clouds.	Wind.	9 P. M.	
1	60	0	W.	74	63.24	0	1 S.	29.2574	Rain fall last night
2	58	0	1 W.	72	57.61	0	0	29.2607	1. Rain 2 P. M.
3	53	0	2 E.	74	63.24	1 Str.	0	29.2608	5. Slight showers
4	64	10 Nimb.	1 W.	81	74.734	1 Cu.	0	29.2670	7. Thunder shower to last night 1 in.;
5	68	5 Cir. S.	1 S. W.	65	57.6124	8 Cir. S.	3 N. E.	29.2670	8. Shower 4 P. M., 21
6	53	0	1 E.	73	62.6224	0	1 S. W.	29.2670	9. Minimum cold last night 46°
7	63	9 Cu. S.	2 W.	71	75.69	8 Cir. S.	2 S. W.	29.4471	10. Minimum cold last night 43°
8	67	10 Cir. S.	2 S.	77	56.64	0	0	29.1277	11. Shower 5:50 to 6:05 P. M.
9	51	5 Cu.	1 S.	63	55.56	0	0	29.4471	12. Rain last night and this A. M.
10	50	1 Cu.	1 W.	71	66.6524	0	1 W.	29.7366	13. Sprinkle of rain 8 A. M.; rained from 2
11	53	2 Cu.	1 W.	78	71.7124	0	2 S. W.	29.7279	to 4 P. M.
12	61	1 Cir.	1 W.	83	71.7124	0	0	29.6772	Slight rain last night
13	65	1 Cir.	2 W.	84	72.7524	8 Str.	0	29.6574	Total rain fall
14	73	6 Cir.	2 W.	84	72.7524	0	1 N.	29.5674	Total rain fall for June, 1884
15	64	6 Cir.	1 N.	82	71.72	0	1 W.	29.4676	Average temperature 66.5°
16	69	0	1 N.	87	64.71	4 Cir. S.	0	29.4971	
17	54	8 Cu. S.	1 S.	69	60.6224	0	0	29.6770	
18	53	0	1 S.	67	65.6224	0	0	29.7168	
19	56	0	0	78	67.67	0	0	29.7168	
20	59	0	0	87	73.73	2 Cir.	2 W.	29.6770	
21	68	3 Cir. S.	2 S.	87	75.7624	5 Cir.	2 S.	29.4376	
22	68	0	2 W.	73	62.6824	0	2 N.	29.2670	
23	54	0	1 W.	73	62.6824	0	0	29.5568	
24	56	0	2 S. W.	77	62.6824	0	0	29.6867	
25	56	3 Cir. S.	1 W.	78	68.6824	0	0	29.7068	
26	64	10 Cir. S.	1 S. W.	81	73.7224	1 Cir. S.	2 S.	29.6574	
27	64	0	1 S.	79	73.7224	0	0	29.5473	
28	70	0	1 S.	83	70.7324	9 Cu. S.	1 S.	29.4380	
29	69	8 Cu.	0	83	70.7324	10 Str.	2 N.	29.3270	
30	56	0	3 N.	61	58.5924	0	1 N.	29.3468	
								29.3068	

METEOROLOGICAL OBSERVATIONS.

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Meteorological Observations taken at Wilkes-Barre, Pa., for July, 1885, by E. L. Dana. (Latitude 41° 14' 40.4" Longitude West 1° 20' 4.6")											
Day.	THERMOMETER.					BAROMETER.					REMARKS.
	7 A. M.	Clou.	Wind.	9 P. M.	Average Temp.	Clou.	Wind.	7 A. M.	9 P. M.	Alt. Th.	
1	59	0 Str.	S. W.	59	59.64	0	W.	67.28	70.29	30.72	1. Minimum last night 50°
2	52	10 Str.	W.	61	61.58	0	S. W.	29.38	29.30	30.72	2. Raining at 9 P. M.
3	61	0 Str.	W.	69	64.64	2	W.	29.55	29.37	30.40	3. Rain last night
4	58	4 Cir.	W.	71	66.65	0	N. W.	29.48	29.43	30.49	4. Rain at 1 P. M.
5	63	0	N. E.	81	68.70	0	W.	29.54	29.50	30.79	5. Slight shower
6	69	3 Cir.	W.	85	73.75	2	S. W.	29.59	29.55	30.82	7. Rain this A. M., till 1 P. M.
7	67	8 Cir.	W.	83	70.70	0	W.	29.50	29.50	30.78	9. Rain shower in P. M.
8	67	8 Cir.	W.	83	74.74	0	W.	29.60	29.52	30.84	10. Rain fall yesterday and last night
9	69	3 Cir.	W.	88	70.74	0	W.	29.47	29.41	30.40	14. Rain fall this A. M.; 19; this P. M., .06
10	68	2 Cir.	W.	76	70.74	0	W.	29.32	29.30	30.80	21. Slight rain 9 P. M.
11	58	1 Cir.	W.	72	65.66	0	W.	29.49	29.50	30.76	22. Rain fall last night
12	55	0	S. S.	76	69.67	0	W.	29.60	29.53	30.77	24. Began raining at 6 P. M.; rained again at 9 P. M.
13	61	1 Cir.	W.	77	66.68	0	W.	29.50	29.40	30.73	95. Rain fall last night .60 in.; shower to-day 5:20 to 6:30 P. M., .95 in.
14	62	10 Nimb.	W.	81	75.75	6	S. W.	29.40	29.40	30.76	96. Slight shower during the day; rain fall .01 in.
15	61	0	W.	89	70.74	0	W.	29.60	29.60	30.85	99. Shower at 11:00 to 12:00 M. 10-day .39 in.
16	64	0	W.	81	70.74	0	W.	29.60	29.56	30.87	Total rain fall for July, 1884 3.19 in.
17	67	1 Cir.	W.	85	75.74	0	W.	29.52	29.47	30.83	Average temperature 72.5
18	75	0	W.	89	76.77	0	W.	29.50	29.45	30.84	Total rain fall for July, 1884 4.59 in.
19	64	0	W.	85	70.74	0	W.	29.40	29.35	30.85	
20	68	0	W.	89	79.80	0	W.	29.48	29.50	30.86	
21	70	1 Cir.	W.	93	75.77	4	S. W.	29.54	29.50	30.85	
22	74	1 Cir.	W.	84	70.74	0	W.	29.64	29.60	30.84	
23	68	6 Cu.	W.	80	72.76	10	Nimb.	29.63	29.60	30.85	
24	76	3 Cir.	W.	85	72.76	9	Nimb.	29.45	29.43	30.84	
25	73	3 Cir.	W.	87	73.74	10	Nimb.	29.45	29.40	30.84	
26	71	5 Cir.	W.	81	73.74	9	Cir. S.	29.63	29.58	30.81	
27	67	10 Str.	W.	83	71.72	0	W.	29.55	29.55	30.81	
28	64	5 Cir.	W.	80	73.74	0	W.	29.55	29.47	30.80	
29	73	7 Cir.	W.	86	70.74	0	W.	29.34	29.30	30.82	
30	68	1 Cir.	W.	79	72.74	0	W.	29.39	29.35	30.84	
31	63	0	W.	80	75.73	0	W.	29.37	29.38	30.81	

Meteorological Observations taken at Wilkes-Barre, Pa., for August, 1885, by E. L. Dana.
(Latitude 41° 14' 40.4" Longitude West 1° 10' 46")

Day.	THERMOMETER.			Clouds.	Wind.	7 A. M.	BAROMETER.			Wind.	Average Temp.	Clouds.	Wind.	BAROMETER.			REMARKS.
	7 A. M.	3 P. M.	9 P. M.				7 A. M.	3 P. M.	9 P. M.					Att. Th.	3 P. M.	Att. Th.	
1	0	0	88	1 Cir.	W.	69	74.99	86	29.48	83	0	N.	0	74.99	86	29.48	1. Slight shower 5:30 P. M.; thunder shower 8:30 to 9 P. M.
2	9 Str.	1 N.	81	4 Cir. Cu.	W.	72	74.99	89	29.40	88	0	N.	0	74.99	89	29.40	Rain fall last night .36 in.
3	10 Nimb.	2 W.	67	10 Nimb.	W.	73	74.99	30	29.23	79	0	W.	0	74.99	30	29.23	Rain last night .12; to-day 9 A. M. to 7 P. M. 1.26
4	6 Fog.	3 W.	79	4 Cir. Cu.	W.	66	73.99	23	29.38	82	0	N.	0	73.99	23	29.38	Shower at 7 P. M.; rain fall .14 in.
5	55	0	74	5 Cir. Cu.	W.	64	70.99	40	29.50	85	0	N.	0	70.99	40	29.50	Sprinkle to-day.
6	30	0	69	10 Nimb.	W.	61	70.99	55	29.55	86	0	N.	0	70.99	55	29.55	Rain fall to 3 P. M. .25; and to 6 P. M. .24
7	59	1	74	6 Cu.	W.	59	70.99	49	29.58	88	0	N.	0	70.99	49	29.58	Rain fall last night .10 in.
8	69	1	74	5 Cir. S.	W.	68	70.99	53	29.59	88	0	W.	0	70.99	53	29.59	Rain fall last night .23 in.
9	66	1	70	5 Cir. Cu.	W.	66	70.99	58	29.58	84	0	W.	0	70.99	58	29.58	Rain at 12 M. .09, and from 3 to 4:45 P. M. 1.19 in.
10	70	1	85	3 Cir. Cu.	W.	71	70.99	55	29.53	84	0	W.	0	70.99	55	29.53	Rain last night .11 in.
11	76	1	85	5 Cir. Cu.	W.	74	70.99	51	29.53	85	0	W.	0	70.99	51	29.53	M. .49
12	75	1	84	5 Cir. Cu.	W.	74	70.99	53	29.50	85	0	W.	0	70.99	53	29.50	Thunder shower 5 to 6 P. M. with wind. .48 in.
13	75	1	85	3 Cu.	W.	75	70.99	56	29.50	85	0	W.	0	70.99	56	29.50	Rain last night .03, also this A. M. .03 in.
14	61	1	77	3 Cu.	W.	61	70.99	60	29.57	88	0	N.	0	70.99	60	29.57	Rain last night .21; thundershower 3:30 to 4:10 .22
15	68	0	70	7 Cir. Cu.	W.	66	70.99	63	29.57	88	0	N.	0	70.99	63	29.57	Rain last night .69, up to P. M. 1.11
16	68	0	79	5 Cir. Cu.	W.	67	70.99	58	29.57	88	0	N.	0	70.99	58	29.57	Rain last night from 6 to 7:03 .17
17	71	1	79	5 Cir. Cu.	W.	67	70.99	58	29.57	88	0	N.	0	70.99	58	29.57	Minimum temperature last night 40°
18	71	1	79	3 Cir.	W.	67	70.99	58	29.57	88	0	N.	0	70.99	58	29.57	Thunder shower 2:30 this A. M. .48 in.
19	72	1	79	3 Cir.	W.	67	70.99	58	29.57	88	0	N.	0	70.99	58	29.57	Total rain fall .77 in.
20	72	1	79	10 Str.	W.	68	70.99	53	29.57	88	0	N.	0	70.99	53	29.57	Total rain fall for August, 1884 .84 in.
21	71	1	79	10 Str.	W.	68	70.99	53	29.57	88	0	N.	0	70.99	53	29.57	Average temperature 66.5°
22	71	1	79	10 Str.	W.	68	70.99	53	29.57	88	0	N.	0	70.99	53	29.57	3% colder than August, 1884, and 1/2 warmer than August, 1883.
23	71	1	79	3 Cir. Cu.	W.	68	70.99	53	29.57	88	0	N.	0	70.99	53	29.57	
24	71	1	79	3 Cir. Cu.	W.	68	70.99	53	29.57	88	0	N.	0	70.99	53	29.57	
25	71	1	79	3 Cir. Cu.	W.	68	70.99	53	29.57	88	0	N.	0	70.99	53	29.57	
26	71	1	79	3 Cir. Cu.	W.	68	70.99	53	29.57	88	0	N.	0	70.99	53	29.57	
27	71	1	79	3 Cir. Cu.	W.	68	70.99	53	29.57	88	0	N.	0	70.99	53	29.57	
28	71	1	79	3 Cir. Cu.	W.	68	70.99	53	29.57	88	0	N.	0	70.99	53	29.57	
29	71	1	79	3 Cir. Cu.	W.	68	70.99	53	29.57	88	0	N.	0	70.99	53	29.57	
30	71	1	79	3 Cir. Cu.	W.	68	70.99	53	29.57	88	0	N.	0	70.99	53	29.57	
31	71	1	79	3 Cir. Cu.	W.	68	70.99	53	29.57	88	0	N.	0	70.99	53	29.57	

Meteorological Observations taken at Wilkes-Barre, Pa., for September, 1885, by E. L. Dana.

(Latitude $41^{\circ} 14' 40.4''$ Longitude West $10^{\circ} 10' 4.6''$)

Day.	THERMOMETER.				BAROMETER.				REMARKS.
	7 A. M.	9 P. M.	Average Temp.	Wind.	Clouds.	7 A. M.	9 P. M.	Att. Th.	
1	56	70	57.6%	2 W.	8 Cir. S.	29.3570	29.3175	29.4372	3. Minimum last night .43°; rain this evening at 7 .29 in.
2	42	61	51.53	1 W.	0	29.6070	29.6071	29.6674	4. Rain at about 4 P. M. .24 in.
3	45	68	63.5934	2 W.	1 Cir. S.	29.6367	29.5672	29.5975	5. Rain last night .08, this P. M. up to 5 P. M. .15
4	56	60	58.54%	2 W.	10 Str.	29.5871	29.4377	29.3978	6. Minimum last night .46°
5	58	60	59.34	1 E.	0	29.4774	29.4074	29.4674	8. Rain 2 P. M. to 6 P. M. .16 in.
6	48	62	55.54	1 S. W.	3 Cu. S.	29.6770	29.6372	29.6474	9. Rain last night .10 in.
7	52	67	62.5934	1 N.	5 Str.	29.6368	29.6072	29.6374	10. Slight rain in evening .22
8	54	78	65.6734	1 W.	10 Nimb.	29.6072	29.5373	29.5977	23. Rain fall last night .22 in.
9	65	80	72.5734	2 W.	0	29.2076	29.1879	29.3077	
10	53	70	56.5534	1 W.	10 Nimb.	29.4372	29.5074	29.6074	
11	55	70	62.5734	1 W.	9 Str.	29.7071	29.7072	29.7072	
12	56	62	60.6034	1 W.	0	29.7071	29.7072	29.6176	
13	62	74	67.6734	2 S. W.	0	29.5372	29.4876	29.4178	
14	67	82	74.6534	1 W.	0	29.4076	29.3580	29.4083	
15	59	76	64.6534	2 S. W.	4 Cir.	29.4074	29.3378	29.3778	
16	52	66	59.34	2 S. W.	0	29.4271	29.4771	29.6370	
17	45	66	55.34	1 W.	8 Cir. S.	29.7770	29.7471	29.7176	
18	48	74	60.6234	0	0	29.7070	29.6075	29.6178	
19	60	73	66.6234	0	0	29.6473	29.5776	29.5477	
20	52	66	59.34	2 W.	0	29.7270	29.6771	29.7074	
21	51	67	59.6134	1 W.	1 Cir. S.	29.6669	29.6071	29.5975	
22	57	71	64.45	8 Cir. S.	10 Str.	29.3872	29.1474	29.0177	
23	44	50	47.50	2 W.	3 S. W.	29.2070	29.2372	29.3774	
24	45	65	55.54	2 S. W.	4 Cir. Cu.	29.4368	29.3671	29.4476	
25	48	70	59.34	1 N.	0	29.6072	29.6676	29.7479	
26	49	75	62.6234	0	0	29.8073	29.7878	29.7082	
27	54	77	64.6434	0	0	29.7074	29.6379	29.6781	
28	55	78	64.8434	0	0	29.7076	29.6382	29.6581	
29	55	86	64.6734	10	0	29.6571	29.6084	29.5982	
30	58	76	65.34	0	0	29.5574	29.4778	29.5079	

Total rain fall for September, 1885. 1.24 in.
 Total rain fall for September, 1884. 1.66 in.
 Average temperature 66°

Meteorological Observations taken at Wilkes-Barre, Pa., for October, 1885, by E. L. Dana.
(Latitude 41° 14' 40.4" Longitude West 1° 10' 4.6")

Day.	THERMOMETER.			BAROMETER.			REMARKS.
	7 A. M.	Wind.	7 P. M.	Clouds.	Wind.	Average Temp.	
1	56 to Str.	0	66 66 59	0	0	66 66 59	
2	54 to Cir. S.	1 S. W.	63 to Nimb.	1 W.	0	66 66 59	
3	60 to Nimb.	0	58 58 54	1 S.	10 Nimb.	66 66 59	
4	62 to Str.	1 S. W.	71 to Cir.	1 W. E.	1 Str.	66 66 59	
5	41 to Cir.	1 N. W.	52 to Nimb.	2 S.	0	66 66 59	
6	42 to Str.	1 N. W.	54 to Cir. S.	2 W.	10 Str.	66 66 59	
7	40 to Cir. S.	1 N. W.	49 to Str.	1 N.	0	66 66 59	
8	39 to Nimb.	1 S.	50 to Cir.	1 N. W.	0	66 66 59	
9	45 to Str.	0	54 to Cir. S.	1 N.	0	66 66 59	
10	45 to Str.	0	63 to 0	0	0	66 66 59	
11	46 to Str.	0	66 to 0	0	0	66 66 59	
12	43 to Str.	0	61 to Str.	1 W.	0	66 66 59	
13	46 to Str.	2 S. E.	59 to Cir. S.	1 W.	10 Nimb.	66 66 59	
14	50 to Str.	0	59 to Str.	3 W.	5 Str.	66 66 59	
15	51 to Str.	1 N.	53 to Cir.	2 W.	8 Str.	66 66 59	
16	42 to 0	0	54 to Str.	1 N.	8 Cir.	66 66 59	
17	44 to 0	0	64 to Cu. S.	1 S. W.	1 Cu.	66 66 59	
18	42 to 0	0	67 to Cir. S.	1 S.	0	66 66 59	
19	46 to Cu. S.	2 S. W.	69 to Cu. S.	2 S.	0	66 66 59	
20	46 to Nimb.	1 S.	70 to Cir. Ch.	2 S. E.	3 Cu. S.	66 66 59	
21	46 to Str.	1 S. W.	49 to Nimb.	1 W.	0	66 66 59	
22	43 to Str.	1 S. W.	50 to Cu. S.	1 W.	9 Cir. S.	66 66 59	
23	41 to Fog.	1 N.	38 to 4 1/2	1 W.	2 Cir.	66 66 59	
24	41 to Cu. S.	1 N.	45 to 4 1/2	1 W.	7 Cir.	66 66 59	
25	33 to Fog.	1 N.	36 to 4 1/2	1 N.	0	66 66 59	
26	35 to Fog.	1 N.	40 to 4 1/2	0	1 Cir.	66 66 59	
27	37 to Fog.	0	40 to 4 1/2	0	0	66 66 59	
28	35 to Fog.	0	41 to 4 1/2	0	0	66 66 59	
29	35 to Cu. S.	2 S.	41 to Str.	1 N.	0	66 66 59	
30	42 to Cu. S.	2 N.	52 to Nimb.	1 N.	10 Nimb.	66 66 59	
31	31 to Cu. S.	1 N. W.	34 to Nimb.	2 N.	10 to Cir. Cu.	66 66 59	
			40 to 0	3 W.	0	66 66 59	
			34 to 3 1/2	0	0	66 66 59	

BAROMETER.		REMARKS.
7 A. M.	9 P. M.	
29.59 75 59.50	29.51 79	3. Rain fall last night and this morning .64 in.
29.47 73 59.44	29.37 77	4. Rained last night and since 10:30 this A. M.; fall .62 in.
29.30 80 59.10	29.10 82	6. Rain fell last night and before 9 this A. M. .12 in.
29.51 73 59.47	29.48 76	13. Rain fall early forenoon .27 in.
29.55 72 59.56	29.56 82	14. " " " " .11 in.
29.63 72 59.60	29.67 78	21. Began raining in night at 12 M.; rain fall 1.69; since this .13
29.71 74 59.72	29.71 72	22. River 12 feet +
29.77 75 59.69	29.66 82	23. Frost.
29.73 76 59.62	29.76	25. Min. last night 35°
29.72 76 59.56	29.81	29. Sprinkle of rain at noon; raining at 6 and 9 P. M.
29.83 76 59.13	29.79	30. Rain fall last night .87; flurry of snow 2 P. M. .87 in.
29.74 79 59.31	29.30 76	Total rain fall for October, 1885 . . . 4.45 in.
29.75 79 59.78	29.34 77	Total rain fall for October, 1884 . . . 3.44 in.
29.77 79 59.45	29.47 80	Average temperature 50°
29.75 79 59.47	29.48 80	
29.74 79 59.61	29.59 85	
29.74 79 59.46	29.48 84	
29.78 59 59.50	29.50 77	
29.75 59 59.54	29.54 76	
29.75 59 59.50	29.53 73	
29.76 59 59.67	29.70 75	
29.72 59 59.64	29.65 75	
29.73 59 59.72	29.53 80	
29.76 59 59.47	29.48 75	
29.70 59 48 59 47	29.47 75	
29.80 59 08 28 86	28 86 83	
29.78 59 10 78 59 30	78 59 30	
29.71 59 59 79 59 64	79 59 64	

Meteorological Observations taken at Wilkes-Barre, Pa., for November, 1885, by E. L. Dana.

(Latitude 41° 14' 40.4" Longitude West 1° 4.6')

Day.	THERMOMETER.				Wind.	Clouds.	Temp.	BAROMETER.				REMARKS.			
	7 A. M.	9 P. M.	Average	Wind.				7 A. M.	9 P. M.	Average	Wind.				
1	46	45	44	S. W.	9 Cir. Cu.	45	40	44	S. W.	30.63	30.45	30.53	0	1	Minimum last night, 24°; raining in evening.
2	47	47	47	S. W.	9 Cu.	47	42	44	S. W.	30.24	30.15	30.21	77	2	Rain last night76 in.
3	50	49	49	S. W.	10 Nimb.	49	40	44	S. W.	30.26	30.31	30.28	76	3	Rain fall04 in.
4	40	40	40	S. W.	0 Cu. S.	43	44	44	S. W.	30.55	30.50	30.53	80	4	Rain fall last night up to 5 P. M., 86; raining at 9 P. M.86 in.
5	45	45	45	S. W.	8 Cir.	53	53	53	S. S.	30.46	30.42	30.45	82	5	Rain fall last night23 in.
6	47	47	47	S.	9 Cir.	63	60	61	S. S.	30.55	30.53	30.53	85	6	Rain fall13 in.
7	45	45	45	S. W.	10 Nimb.	68	67	67	S. S.	30.54	30.50	30.52	86	7	Minimum last night, 24°
8	44	44	44	S. W.	10 Nimb.	55	55	55	S. W.	30.44	30.35	30.40	83	8	Rain fall last night, 19; to-day, 18;
9	44	44	44	S. W.	10 Cu. S.	48	43	45	S. W.	30.39	30.33	30.36	80	9	Rain fall last night, 19; to-day, 18;
10	41	41	41	S. W.	7 Cu.	45	43	44	S. W.	30.41	30.38	30.39	80	10	Minimum last night, 24°
11	46	46	46	S. W.	10 Nimb.	48	48	48	S. W.	30.41	30.38	30.39	80	11	Rain fall last night, 19; to-day, 18;
12	48	48	48	S. W.	10 Nimb.	45	43	44	S. W.	30.50	30.40	30.35	80	12	Minimum last night, 24°
13	48	48	48	S. W.	10 Nimb.	45	43	44	S. W.	30.50	30.40	30.35	80	13	Rain fall last night, 19; to-day, 18;
14	40	40	40	S. W.	9 Nimb.	57	38	37	S. W.	30.30	30.26	30.28	81	14	Snowing in A. M.; rain at 2 P. M.; rain fall .05 in.
15	40	40	40	S. W.	9 Nimb.	45	40	40	S. W.	30.30	30.26	30.28	81	15	Snowing in A. M.; rain at 2 P. M.; rain fall .05 in.
16	40	40	40	S. W.	9 Nimb.	45	40	40	S. W.	30.30	30.26	30.28	81	16	Snowing in A. M.; rain at 2 P. M.; rain fall .05 in.
17	40	40	40	S. W.	9 Nimb.	45	40	40	S. W.	30.30	30.26	30.28	81	17	Snowing in A. M.; rain at 2 P. M.; rain fall .05 in.
18	40	40	40	S. W.	9 Nimb.	45	40	40	S. W.	30.30	30.26	30.28	81	18	Snowing in A. M.; rain at 2 P. M.; rain fall .05 in.
19	40	40	40	S. W.	9 Nimb.	45	40	40	S. W.	30.30	30.26	30.28	81	19	Snowing in A. M.; rain at 2 P. M.; rain fall .05 in.
20	40	40	40	S. W.	9 Nimb.	45	40	40	S. W.	30.30	30.26	30.28	81	20	Snowing in A. M.; rain at 2 P. M.; rain fall .05 in.
21	40	40	40	S. W.	9 Nimb.	45	40	40	S. W.	30.30	30.26	30.28	81	21	Snowing in A. M.; rain at 2 P. M.; rain fall .05 in.
22	40	40	40	S. W.	9 Nimb.	45	40	40	S. W.	30.30	30.26	30.28	81	22	Snowing in A. M.; rain at 2 P. M.; rain fall .05 in.
23	40	40	40	S. W.	9 Nimb.	45	40	40	S. W.	30.30	30.26	30.28	81	23	Snowing in A. M.; rain at 2 P. M.; rain fall .05 in.
24	40	40	40	S. W.	9 Nimb.	45	40	40	S. W.	30.30	30.26	30.28	81	24	Snowing in A. M.; rain at 2 P. M.; rain fall .05 in.
25	40	40	40	S. W.	9 Nimb.	45	40	40	S. W.	30.30	30.26	30.28	81	25	Snowing in A. M.; rain at 2 P. M.; rain fall .05 in.
26	40	40	40	S. W.	9 Nimb.	45	40	40	S. W.	30.30	30.26	30.28	81	26	Snowing in A. M.; rain at 2 P. M.; rain fall .05 in.
27	40	40	40	S. W.	9 Nimb.	45	40	40	S. W.	30.30	30.26	30.28	81	27	Snowing in A. M.; rain at 2 P. M.; rain fall .05 in.
28	40	40	40	S. W.	9 Nimb.	45	40	40	S. W.	30.30	30.26	30.28	81	28	Snowing in A. M.; rain at 2 P. M.; rain fall .05 in.
29	40	40	40	S. W.	9 Nimb.	45	40	40	S. W.	30.30	30.26	30.28	81	29	Snowing in A. M.; rain at 2 P. M.; rain fall .05 in.
30	40	40	40	S. W.	9 Nimb.	45	40	40	S. W.	30.30	30.26	30.28	81	30	Snowing in A. M.; rain at 2 P. M.; rain fall .05 in.

Total rain fall and melted snow 5.22 in.
 Total rain fall for November, 1884 3.28 in.
 Depth of snow 11 in.
 Average temperature, 46°

Meteorological Observations taken at Wilkes-Barre, Pa., for December, 1885, by E. L. Dana.

(Latitude 41° 14' 40.4" Longitude West 1° 10' 4.6")

Day	THERMOMETER.				BAROMETER.				REMARKS.
	7 A. M.	Wind.	Clouds.	Temp.	Wind.	Average Temp.	Clouds.	Wind.	
1	31	0 Cir. S.	1 N. E.	33 33%	0 Nimb.	0 S. E.	29.68	7 A. M.	4. Snowing at 2:30 P. M.; 1/2 in. melted, and rain.
2	32	9 Cu. S.	2 W. W.	37 3%	1 Cir.	1 S. E.	29.59	9 P. M.	5. Rain and snow last night .11 in.
3	35	10 Nimb.	1 S. W.	30 33	4 Cir.	1 E.	28.93	7 A. M.	8. Minimum last night 5°; sleet in evening.
4	29	3 Cir. S.	1 S. W.	37 35	10 Cir.	1 E.	29.22	9 P. M.	9. Raining all the A. M.; rain fall last night and to 1 P. M. 10-day.
5	37	8 Nimb.	3 S. W.	37 100%	2 Cir.	2 S. W.	28.73	7 A. M.	13. Snow 8:10 A. M., followed by rain 5 P. M.; rain fall.
6	21	0	2 S. W.	27 100%	0	0	29.10	9 P. M.	14. Rain fall last night.
7	12	0	1 S. W.	12 13%	0	0	29.04	7 A. M.	19. Slight flurries of snow.
8	7	0	2 S. W.	29 23	10 Cir.	1 S.	29.70	9 P. M.	23. Began raining in P. M.
9	42	10 Nimb.	2 S. W.	51 52%	10 Nimb.	1 S. W.	29.27	7 A. M.	24. Rain fall yesterday and last night .10 in.
10	42	5 Cir. Cu.	2 W.	34 37	10 Str.	1 S.	29.60	9 P. M.	31. Began raining 5:10 A. M.; at 9 A. M. rain fall .29; at 5 P. M. .60; total .89 in.
11	26	0	2 S. W.	25 28	0	0	30.10	7 A. M.	Total rain fall for December, 1884 . . . 2.69 in.
12	22	1 Cir.	1 W.	29 27%	0	0	29.80	9 P. M.	Average temperature 35°
13	37	10 Str.	1 S.	44 100%	10 Nimb.	0	29.17	7 A. M.	Snow 1/2 inch.
14	38	10 Str.	2 S. W.	29 28%	2 Cir.	0	29.46	9 P. M.	
15	34	10 Str.	1 S.	31 34	2 Cir.	0	29.70	7 A. M.	
16	33	7 Cir. Cu.	2 W.	36 35%	0	0	29.60	9 P. M.	
17	30	5 Cir.	1 N.	33 32%	2 Cir. Cu.	1 W.	29.18	7 A. M.	
18	35	10 Nimb.	1 S. W.	30 33%	2 Cir.	0	29.40	9 P. M.	
19	37	4 Cir.	1 W.	28 26	4 Cir.	0	29.53	7 A. M.	
20	24	4 Cir. Cu.	3 W.	28 0	0	0	29.70	9 P. M.	
21	22	6 Cir.	1 S. W.	40 36%	0	0	29.50	7 A. M.	
22	31	10 Cir. S.	1 S. W.	35 35%	8 Cir.	0	29.70	9 P. M.	
23	30	8 Cir.	1 S. W.	42 48%	10 Nimb.	1 S.	29.58	7 A. M.	
24	30	6 Cu.	12 N.	42 50%	0	0	29.50	9 P. M.	
25	30	0	0	30 25%	0	0	29.78	7 A. M.	
26	15	0	0	13 16	0	0	29.78	9 P. M.	
27	13	0	0	26 23	0	0	29.68	7 A. M.	
28	34	8 Cu.	2 N. W.	36 34%	10 Cir.	1 E.	29.47	9 P. M.	
29	35	8 Cu.	0	28 32	0	0	29.54	7 A. M.	
30	19	0	0	37 34%	3 Str.	1 W.	29.54	9 P. M.	
31	37	10 Nimb.	1 S.	37 37%	10 Nimb.	1 S.	29.30	7 A. M.	

Meteorological Observations taken at Wilkes-Barre, Pa., for January, 1886, by E. L. Dana.
(Latitude 41° 14' 40.4" Longitude West 1° 10' 4.6")

Day.	THERMOMETER.				Wind.	Clouds.	9 P. M.	Wind.	9 P. M.	Average Temp.	Clouds.	Wind.	BAROMETER.			REMARKS.		
	7 A. M.	9 P. M.	7 A. M.	9 P. M.									7 A. M.	9 P. M.	Air. Th.			
1	34	37	35	33	1 W.	4 Cu.	1 N.	27 31 34	0	0	0	0	29.60	29.64	84	29.74	78	Rain last night .03, to 5 P. M. to-day .50; very high wind
2	33	37	35	33	1 S.	10 Str.	1 S.	27 30 34	0	0	0	0	29.60	29.64	84	29.74	78	Rain fall last night .78; snowing at 11 A. M., and at 5 P. M., .15; snow 1/2 in.
3	46	48	45	43	1 E.	10 Nimb.	4 S.	40 40	10 Nimb.	10 Nimb.	6 S. E.	6 S. E.	29.78	29.76	29.71	29.67	80	6. Snowing, depth 3/4 in.; melted
4	47	47	45	43	1 W.	10 Cir. S.	2 S. W.	33 38	10 Nimb.	10 Nimb.	1 N.	1 N.	29.44	29.40	29.37	29.33	78	9. Snow 1 in.; melted
5	47	47	45	43	1 W.	10 Cir. S.	2 S. W.	33 38	10 Nimb.	10 Nimb.	1 N.	1 N.	29.44	29.40	29.37	29.33	78	10. Slight flurry of snow
6	47	47	45	43	1 N. E.	10 Str.	2 N. E.	33 38	10 Str.	10 Str.	3 N. N.	3 N. N.	29.39	29.37	29.37	29.37	78	11. At zero during night; river closed at midnight last night.
7	47	47	45	43	1 N.	4 Cir.	1 N.	33 38	4 Cir.	4 Cir.	2 N. W.	2 N. W.	28.50	28.54	28.48	28.48	78	12. Minimum last night -9°
8	47	47	45	43	1 N.	4 Cir.	1 N.	33 38	4 Cir.	4 Cir.	2 N. W.	2 N. W.	28.50	28.54	28.48	28.48	78	13. " " " -13°
9	47	47	45	43	1 N.	4 Cir.	1 N.	33 38	4 Cir.	4 Cir.	2 N. W.	2 N. W.	28.50	28.54	28.48	28.48	78	14. " " " -17°
10	47	47	45	43	1 N.	4 Cir.	1 N.	33 38	4 Cir.	4 Cir.	2 N. W.	2 N. W.	28.50	28.54	28.48	28.48	78	15. Snowing at 9 P. M.; fell 1 in.
11	47	47	45	43	1 N.	4 Cir.	1 N.	33 38	4 Cir.	4 Cir.	2 N. W.	2 N. W.	28.50	28.54	28.48	28.48	78	16. Snowed a little last night, 1 in. and with that of 16th melted to 19 later
12	47	47	45	43	1 N.	4 Cir.	1 N.	33 38	4 Cir.	4 Cir.	2 N. W.	2 N. W.	28.50	28.54	28.48	28.48	78	17. Rain fall to-day during A. M.
13	47	47	45	43	1 N.	4 Cir.	1 N.	33 38	4 Cir.	4 Cir.	2 N. W.	2 N. W.	28.50	28.54	28.48	28.48	78	18. Minimum last night 0.
14	47	47	45	43	1 N.	4 Cir.	1 N.	33 38	4 Cir.	4 Cir.	2 N. W.	2 N. W.	28.50	28.54	28.48	28.48	78	19. Snowing at 7 A. M. to 11; depth 1 1/4 in.
15	47	47	45	43	1 N.	4 Cir.	1 N.	33 38	4 Cir.	4 Cir.	2 N. W.	2 N. W.	28.50	28.54	28.48	28.48	78	20. Minimum last night 0.
16	47	47	45	43	1 N.	4 Cir.	1 N.	33 38	4 Cir.	4 Cir.	2 N. W.	2 N. W.	28.50	28.54	28.48	28.48	78	21. Rain fall to-day during A. M.
17	47	47	45	43	1 N.	4 Cir.	1 N.	33 38	4 Cir.	4 Cir.	2 N. W.	2 N. W.	28.50	28.54	28.48	28.48	78	22. Snowing at 7 A. M. to 11; melted
18	47	47	45	43	1 N.	4 Cir.	1 N.	33 38	4 Cir.	4 Cir.	2 N. W.	2 N. W.	28.50	28.54	28.48	28.48	78	23. Slight rain
19	47	47	45	43	1 N.	4 Cir.	1 N.	33 38	4 Cir.	4 Cir.	2 N. W.	2 N. W.	28.50	28.54	28.48	28.48	78	24. Minimum last night 10; melted
20	47	47	45	43	1 N.	4 Cir.	1 N.	33 38	4 Cir.	4 Cir.	2 N. W.	2 N. W.	28.50	28.54	28.48	28.48	78	25. Rain fall last night .23; rain at 2 P. M. .06
21	47	47	45	43	1 N.	4 Cir.	1 N.	33 38	4 Cir.	4 Cir.	2 N. W.	2 N. W.	28.50	28.54	28.48	28.48	78	26. Rain last night
22	47	47	45	43	1 N.	4 Cir.	1 N.	33 38	4 Cir.	4 Cir.	2 N. W.	2 N. W.	28.50	28.54	28.48	28.48	78	27. Snow fall 1 1/4 in.; melted with rain 14 (16 1/2 in snow).
23	47	47	45	43	1 N.	4 Cir.	1 N.	33 38	4 Cir.	4 Cir.	2 N. W.	2 N. W.	28.50	28.54	28.48	28.48	78	28. Snow to-day 1 in.; melted
24	47	47	45	43	1 N.	4 Cir.	1 N.	33 38	4 Cir.	4 Cir.	2 N. W.	2 N. W.	28.50	28.54	28.48	28.48	78	29. Total rain fall
25	47	47	45	43	1 N.	4 Cir.	1 N.	33 38	4 Cir.	4 Cir.	2 N. W.	2 N. W.	28.50	28.54	28.48	28.48	78	30. Total rain fall for January, 1885
26	47	47	45	43	1 N.	4 Cir.	1 N.	33 38	4 Cir.	4 Cir.	2 N. W.	2 N. W.	28.50	28.54	28.48	28.48	78	31. Average temperature 30 1/2°
27	47	47	45	43	1 N.	4 Cir.	1 N.	33 38	4 Cir.	4 Cir.	2 N. W.	2 N. W.	28.50	28.54	28.48	28.48	78	32. Snow 16 1/2 inches.
28	47	47	45	43	1 N.	4 Cir.	1 N.	33 38	4 Cir.	4 Cir.	2 N. W.	2 N. W.	28.50	28.54	28.48	28.48	78	
29	47	47	45	43	1 N.	4 Cir.	1 N.	33 38	4 Cir.	4 Cir.	2 N. W.	2 N. W.	28.50	28.54	28.48	28.48	78	
30	47	47	45	43	1 N.	4 Cir.	1 N.	33 38	4 Cir.	4 Cir.	2 N. W.	2 N. W.	28.50	28.54	28.48	28.48	78	
31	47	47	45	43	1 N.	4 Cir.	1 N.	33 38	4 Cir.	4 Cir.	2 N. W.	2 N. W.	28.50	28.54	28.48	28.48	78	

THE REVEREND BERNARD PAGE, A. M. ;

FIRST EPISCOPAL MINISTER OF WYOMING, A. D. 1771.

[Read before the Society, September 12, 1884, by SHELDON REYNOLDS, ESQ.]

The history of the struggles of the early settlers of Wyoming has preserved in more or less detail the account of the several ministers of the gospel who succeeded one another in the infant colony, and also their work and influence in relation to the church, and the important events occurring during the first few years of the settlement. The clergyman was always an important man in the community in which he labored; and while he was occupied principally with the spiritual welfare of the people and the building up of the church, he nevertheless took a prominent part in the affairs of local government and other secular concerns affecting the prosperity of the settlement. He was educated, and usually bore one or more degrees of some approved institution of learning; he was a patron of schools and letters, and brought to his work much of the power and discriminating judgment which characterized the Puritan preacher of New England. His opinions were sought on important subjects, and were received with general respect. There is a reason, therefore, why local historians give prominence in their writings to an individual who bore such close relations to the whole people, and who was an actor in all the events affecting their well being.

The historians of Wyoming, however, seem to have had no record of the Rev. Bernard Page, as they nowhere mention the name or make any allusion to his ministry. I have been able to learn but little concerning him, even after much inquiry and search. He was ordained in London and assigned to the Wyoming parish in 1772; he was in Wilkes-Barré, however, the previous year, and doubtless was the

first minister of the Episcopal Church at Wyoming. He seems to have undertaken the mission in somewhat the spirit of the early martyrs, and despite the warnings and misgivings of his friends. His position was very different from, and far more trying than that of the other early ministers; they came in response to a call from the people, and found about them friends whom they had known for years; he came as a stranger, uninvited, with no one to receive him, and no provision made for his support, but animated nevertheless, with the spirit expressed in the words of the Master, "Go ye and preach the gospel."

The field of labor which he had chosen, though large, must have seemed to him very unpromising; the people were divided into two parties striving for the possession of the land; one of the contending parties was made up largely of soldiers of fortune who came in the interest and pay of the Pennsylvania claimants of the land, with the expectation and desire of no permanent residence, and whose hope of reward was very probably confined to things temporal. The other party was of another denomination, and looked upon the doctrines sought to be taught as unorthodox, at least, and who had in addition a spiritual guide of their own choosing.

Besides these discouragements the time of his arrival was inopportune; the Pennamite war had been waged for nearly three years with much bitterness, resulting in great destruction of property and considerable bloodshed. The Yankees had been expelled from the Valley five times, and as many times regained possession of the coveted territory. The value of the lands had become well understood by both parties, and the prize at stake fully appreciated. The proprietors of the Susquehanna Company, believing that the Colony of Connecticut was about to espouse their cause, and realizing the importance of an effort on their part which should in its effect prove final, had lately sent into the field

a force numbering about 150 men under the command of an experienced soldier. They found the enemy in possession of Fort Wyoming, a block house which had then recently been constructed by the Pennamites, situated on the River Common near the foot of Northampton street, and forthwith began a carefully planned siege. Selecting four positions about the block house; one a few rods west of it, also on the River Common, another on the opposite side of the river, a third at the Redoubt, and the fourth on the hill further toward the east, they conducted the investment with such vigor and skill that all communication between the garrison and the Proprietary Government was effectually cut off, and the several well equipped expeditions sent to their relief failed of the desired result. "So thorough was the investment," says Miner, "and so closely pressed, that not a man could venture out for food, fuel, or water, without being met by a volley from one of the redoubts. The garrison, containing nearly a hundred souls, soon felt the pressure of actual want, * * * and the dread of approaching famine." The siege beginning early in July was continued until the 14th day of August, 1771, when, reduced to the verge of starvation, and despairing of all hope of succor, the garrison surrendered, thereby leaving the Yankees in undisturbed possession of the place for several years.

Mr. Page, arriving upon the scene at such a juncture, seven days before the capitulation, was confronted with serious obstacles, and subjected to much inconvenience in pursuing his labors. His request to be allowed to preach to the people in the Block House was regarded with a natural, though unjust, suspicion, and as it seems was not granted; a doubt concerning the integrity of his purpose was entertained by the other party also.

Two of the following letters are copies in the handwriting of Colonel Butler. Any communication with the besieged

must necessarily have been submitted to his inspection, hence the copies.

The first letter is indorsed "Mr. Page's letter to both Parties."

AUGUST 7, 1771.

FELLOW SINNERS :

I have long had a hearty desire to see Wyoming; not for the sake of the land there but for the souls' health that are in possession of the same. It is now high time to apply for a remedy to cure your poor wounded souls; and I have an errand from my Lord and Master to you for that purpose. My weapons of war I have with me and with which I will, by God's leave, fight you, are these: the Girdle of Truth about my loins, the Breast-plate of Righteousness on my breast, the Shoes of Peace on my feet, the Shield of Faith in its place, the Helmet of Deliverance on my head, the Sword of the Spirit in my hand, the Threshing Instrument in my mouth, with a persevering spirit, and to these my Master will lend me his arm, wherewith I shall be able to fight the devil that reigns powerfully in many of your souls, and to quench all his fiery darts; and if I wound profoundly I won't leave you to perish in your blood, for I have the Universal Medicine with me, called the Balm of Gilead, which my Master has ordered me to apply to every one, without respect to persons, that is wounded by the above-named instruments, and to whomsoever this is applied it will surely heal. Remember, Noah was sent to warn and to heal before the Deluge; Lot to Sodom and Gomorrhah before its destruction; and Jonah to Nineveh, to save the same, and these last immediately obeyed the voice of the Lord, in throwing down the rebellious arms and flying to Sovereign Arms for protection, and they were spared. Now, I am come in the strength of the great and grand General of the Armies of Israel to fight with the Powers of Darkness for your poor bruised souls, and I trust I shall, by the help of this General, be able to present many of you to King Jesus for a free and absolute pardon; but if you are determined not to hear my voice, my Master's orders are to shake off the dust of Wyoming that hangs on my feet that every atom thereof may be a swift witness against you in the great day of Judgment when all flesh must appear before him and give an account for the deeds done in the body.

Men and Brethren: I believe you will not reject my voice, but gladly hear it, and I heartily wish it may be a savior of life unto eternal life to those that shall hear it. I hear that the Devil is making sport with many of your poor benighted souls and I fear that the

impending hand of the Sword of the Lord will shortly strike on Wyoming if ten righteous are not found therein. Therefore, suffer me, my dear souls, to expostulate with you touching your souls only, for I long for the salvation of the same, yea my soul thirsteth for your souls more than many of your spirits do for blood. Some persons have advised me not to go to Wyoming, saying, "perhaps by one or the other party you may be killed." I replied, "if they be so brutish as to kill me for my errand to them and for the love and affections I have for their souls I am willing to die in my Master's service," and therefore, in the name of Jesus Christ, my loving and merciful Master, I am come to preach the glad tidings of Eternal Salvation to swearers, cursers, blasphemers, and drunkards, yea, and to murderers, if any such here be, and to present to and for them of them who believe, my Master gracious pardon for their souls, which, that all that stand in need of the same, may have, are the prayers, men and brethren, of your ready and willing servant, for Christ sake,

B. PAGE.

P. S.—I beg to have nothing to do with your secular affairs, and to be by myself until matters are settled.

To the Parties who contend for Wyoming.

THE MILL, *Saturday, August ye 10th, 1771.*

FELLOW SINNERS :

Mr. Arrison and some others that are within your house have sat under my ministry and Mr. Arrison knows me and my hand-writing perfectly well, and therefore this is agreed on by this party for me to preach here to-morrow morning and without-side of your house in the afternoon with two witnesses of this party; but you must and I hope you will if I preach to you, assure this party that the persons that come with me shall in this case be in no more danger of losing their lives by you or any of your party than myself, nor in any respect whatever hurt. I am obliged to you for your salute yesterday; but not for the ball in the piece, but providentially it took a tree instead of me; surely both parties if determined for war, ought to have a prospect-glass. I remain your ready and willing servant for Christ sake.

B. PAGE.

P. S.—Herewith you receive a letter of mine directed to both parties, or a copy of the same, if you have not received it.

To the Leading Persons in the Block House.

THE MILL, *Aug. 13, 1771.*

MR. BUTLER :

You know that I do not know so much as you touching the other party, for I know no more than the old universal reports in the Jerseys, and if I were on the verge of Eternity and sensible of it I would, if required, take my Sacrament of the same. I have desired you and the rest of your party already to consider the sin of keeping me from them, as I came out of real love to both parties' souls, and I desire those voices that let and hinder me to read the 54th of Isaiah and the last verse.

But if you are still determined to hinder me, I am nevertheless heartily willing to preach to your party, whenever it is convenient ; as it will not do for me to appoint when and where, lest you should think I have schemed to draw you forth for a Mark.

I am your ready and willing Serv't,
for Christ's sake,

B. PAGE.

The permission which had been given him to preach to those in the Block House was withdrawn as the above letter indicates. The following confirms the fact. It is a note from the officers in the Block House addressed to Mr. Lazr^s. Stewart.

SIR: Our people being all desirous of hearing the gospel preached would have been glad to have had the opportunity—as that is denied, shall be ready to give our women and children the opportunity, and beg you'll keep your men close as you desire the same of ours—you'll communicate this to Mr. Page. We are as usual,

ASHER CLAYTON,
JOS. MORRIS,
JNO. DICK.

The fire from the redoubts upon the Block House was constant from 30th day of July until 14th day of August, with the exception of Sunday, the 11th, the day upon which Mr. Page preached to the besieging party and desired to preach to the other also. The suspension of active hostilities on the 11th was doubtless due in part to Mr. Page's intervention. To the besieged party a minister who could on the one hand give spiritual consolation and advice, and on the other effect a cessation of the galling and continuous

fire of an ever vigilant enemy, was one whose services were greatly to be desired; and we can readily believe that the soldiers of the Block House would gladly forego the privilege of the former for the benefit to be derived from the latter.

"The Mill," mentioned in the letters, was situated on Mill Creek, and was captured by the Yankees upon their approach to the siege of the Block House. It is said by Miner that the first mill was erected in 1773; there is, however, no doubt that there was a mill at the place mentioned in 1771. The Yankees had been on the ground for nearly three years and derived their subsistence in part from the crops they cultivated, and it is hardly to be believed, even though proof was wanting, that they had not provided themselves with so simple and necessary establishment. .

Mr. Page's name appears in no lists of settlers nor in the evidence produced before the Pennsylvania Commissioners on titles to the lands. He was in no sense a settler, or claimant. It would seem that the threat expressed in his first letter was not carried into execution, for although he did shake the dust of Wyoming off his feet, he did so only temporarily. After leaving Wyoming he set out for London where he was ordained and licensed by the Lord Bishop, August 24, 1772, and was assigned to the Wyoming parish. He returned to the scene of his former labors, under the auspices of the Society for the Propagation of the Gospel in Foreign Parts, an organization chartered in England in 1701, one of the purposes of which was to send missionaries to itinerate and make personal observation in the American Colonies. The Wyoming parish, to which he was assigned, contained an extensive territory, and much of his time was taken up in the discharge of his mission in parts remote from Wilkes-Barré. Fithian, in his journal (*Historical Register*, II. 106), mentions a Mr. Page, a church clergyman, as having been on the West Branch, in the neighbor-

hood of Muncy, during the month of June, 1775, who was doubtless the same individual.

Bolton, in his History of West Chester county, N. Y., says that on September 18, 1775, the vestry (of St. Peter's Church) voted "to set on foot a subscription towards the support of the Rev. *Bennet* Page during his preaching at St. Peter's church at Peekskill. This individual was probably the Rev. Bernard Page, A. M., who was licensed by the Bishop of London, * * and appointed to Wyoming parish, Pennsylvania, from whence he removed to this Province. Mr. Page does not appear to have officiated here very long; and no doubt left in consequence of the breaking out of the Revolutionary war."

Rev. Dr. William Smith, in a letter dated Philadelphia, October 13, 1773, to the Lord Bishop of London, says of Mr. Page:

* * * "It is with sorrow we are obliged humbly to represent to your Lordship that our church has lately suffered greatly by several unworthy men, who by the recommendations of those who were not deserving the credit they have received, have found means to impose on your Lordship's goodness and have got into Holy Orders, some of whom have come to this place and some have gone to Maryland and Virginia.

Mr. *Illing*, whom your Lordship sent out, is as Dr. Peters represents him, a worthy man, but Mr. *Page* is every way the reverse. The people in general who subscribed and whose subscriptions he laid before your Lordship, believed him to be a Presbyterian, and are chiefly of that persuasion. He never meant to settle among them but only to get into Orders. He knew none of us would recommend him. Nay, he knew that we would write to your Lordship against him, if we had known of his intentions. Despairing ever to obtain recommendations from any of the clergy here, as his conduct has been very exceptionable the short time he was in America, he applied, just before he embarked, for Letters from Father Harding, a worthy Jesuit in this town, to the Bishop of Canada, with a view to get ordained by him, and as he pretended he meant afterwards to recant his Errors and commence Preaching in our church. Harding, who was always on good terms with us, discovered his Duplicity and want

of Principle and refused to have anything to do with him. He then went among those People on our Frontiers, whom I have mentioned. What other recommendations he produced to your Lordship we have not heard. He never went near the people on Susquehannah, but on his arrival immediately set up as a separate Preacher in New York without any Regard to Order or the Establishment there." (Life of the Rev. Wm. Smith, D. D., Vol. I. p. 84.)

Bishop Perry, in his Collections, referring to this letter, says in a note: "The Rev. Bernard Page, licensed to Wyoming parish, the same year removed to Virginia." Bishop Meade, in his Old Churches, Ministers, and Families of Virginia, refers to him several times. Bishop Meade was once Rector of the historic Christ Church, of Alexandria, Va., of which Rev. Bryan Fairfax, 8th Lord Fairfax, was Rector in 1780. He says, "There was associated with Mr. Fairfax the Rev. Mr. Page, who afterwards moved to Shepherdstown, and of whom I have heard that venerable old lady, Mrs. Shepherd, speak in the highest terms as an evangelical man of the School of Whitfield"—(I., 32). In speaking of Lancaster county and its churches he says: "In 1791 the Rev. David Ball appears for one year in the list of our clerical delegates * * He was followed by a Rev. Mr. Leland and a Rev. Mr. Page, each for a short time"—(II., 124). Under head of Norborne parish, Berkely county: "In the year 1795 the Rev. Bernard Page was minister; of him I have often heard old Mrs. Shepherd speak as one of the evangelical school, deeply pious, zealous, and far beyond the ministerial standard of that day. He had been previously an assistant minister to the Rev. Bryan Fairfax in Christ church, Alexandria. From Shepherdstown he went to the lower part of Virginia, but soon died from the effects of the climate. Mr. Page was succeeded by the Rev. Mr. Heath who was minister in 1800, and died in the parish"—(II., 297).

The Rev. Randolph McKim, D. D., Rector of Christ church, 1867-1875, who, in his Centennial sermon, carefully

preserves so many early events and traditions of this venerable parish, in speaking of Rev. Mr. Fairfax, says: "Nothing has come down to us concerning his preaching; but that his sentiments were evangelical is evinced by his selecting such a man as Rev. Bernard Page to be his assistant."

Through the courtesy of the Rev. H. Suter, D. D., of Alexandria, Va., present Rector of Christ church, I am enabled to give the following extract from the church records relating to Mr. Page. It is dated October 1, 1792, the Rev. Mr. Fairfax being Rector: "Resolved, that as it is agreeable to the Reverend Mr. Thomas Davis, Minister of the parish, the Vestry Grants leave to the Reverend Mr. Bernard Page to preach at the two Churches in Fairfax parish on any Day when they are not occupied by the Minister himself. And that such Subscriptions as the people Choose to make the Rev'd Bernard Page, the Vestry disclaims any authority in Collecting or applying." Mr. Page was assistant while General Washington was a pew holder and an attendant in the services of this church.

Much confusion arises regarding the movements of Mr. Page after his return from London, and it is not easy to reconcile the conflicting statements. Dr. Smith insists that he never went to Wyoming after his return, but that he remained in New York. As his letter bears date 1773, a few months after the arrival of Mr. Page in America, it is probably true he did preach a short time in New York before setting out to the parish to which he had been assigned; but it is equally true that he afterwards repaired to Wyoming, as the Rev. Mr. Fithian met him in that region in June 1775. From there he went to Peekskill where he preached at St. Peter's church, and subsequently removed to Virginia and there spent the rest of his life in his chosen work.

Concerning the evangelical character of Mr. Page, the opinions of his contemporaries widely differ. Dr. Smith's

estimate as expressed in his letter is very positive, not to say bitter, and must have caused the Lord Bishop some misgivings. On the other hand the testimony recorded by Bishop Meade shows his character in quite another light: "deeply pious, zealous, and far beyond the ministerial standard of that day." The letters of Mr. Page to the "Parties who contend for Wyoming" may in fairness be cited in corroboration of the latter opinion. No one can question the zeal of a man who should undertake the mission with which Mr. Page had charged himself, knowing the difficulties of the position, and the many hardships and dangers certain to beset his way; nor is there any reason to doubt the integrity of his purpose or the pious benevolence of his intentions. It may be remarked that the relations of both Mr. Page and Dr. Smith to Wyoming were quite intimate though of somewhat different nature. Mr. Page says: "I am come to preach the glad tidings of eternal salvation * * I desire to have nothing to do with your secular affairs." Dr. Smith's purpose, to use the words of his letter as applied to Mr. Page, was "every way the reverse." Dr. Smith acquired the Pennsylvania title to numerous tracts of land in the Seventeen Townships which he continued to hold and defend in common with others holding like titles, until October 1799, when he conveyed and released them to the Commonwealth of Pennsylvania, under the provisions of the Act of April 4, 1799.

VARIOUS SILVER AND COPPER MEDALS

PRESENTED TO THE AMERICAN INDIANS BY THE SOVEREIGNS OF ENGLAND, FRANCE, AND SPAIN, FROM 1600 TO 1800, AND ESPECIALLY OF FIVE SUCH MEDALS OF GEORGE I., OF GREAT BRITAIN, NOW IN THE POSSESSION OF THIS SOCIETY AND ITS MEMBERS.

[Read before the Society, September 12, 1884, by Rev. Horace Edwin Hayden.]

To the President and Members :

This paper is the result of the discovery that five such medals exist in our valley. One in the possession of the Wyoming Historical and Geological Society ; one in the possession of Master Denison Stearns ; one in the cabinet of Hon. Steuben Jenkins, of Wyoming, and two belonging to my own numismatic cabinet.

I have long had in mind the preparation of an exhaustive paper on the subject of the medals which the various nations of Europe, whose colonies have existed on American soil, have issued to the North American Indians since 1600. But the difficulty of gaining access to the needed authorities, has so far deterred me. I take occasion, however, in treating upon the special subject of this paper, to present to this Society such historical and medallic data as I have been able to discover in my own library.

The continent of America was discovered by the Cabots, under English auspices, in 1497, five years after the discovery, by Columbus, of the West Indies.

In 1512 the Spanish flag floated over the soil of Florida.

In 1534 the French flag was planted on the shores of the Gulf of St. Lawrence.

Thus, in less than forty years, three of the great powers of Europe began their struggle for the supremacy in this New World.

In 1578 and 1584 Elizabeth granted a patent to Sir Humphrey Gilbert and Sir Walter Raleigh. The first took possession of Newfoundland, and the second of Virginia, within one year of each other, with the purpose of forming permanent settlements.

It was not until 1603 that France conferred similar privileges on any of her subjects; then she granted Acadia to de Monti.

These events may appear to be anything but pertinent to the matter under consideration; and yet, out of these distant beginnings grew the medals whose history I desire to record. Parkman, in his charming volumes on the early American colonies, shows how those of "France and England grew up to maturity under widely different auspices." The one, nursed and petted by the royal government, became enervated, and languished; the other, neglected and outcast, grew as a giant from the very necessities of the case.

But France and Rome were one. The religious element which the Romish church fostered and controlled in the French, made the colonists aggressive for the cross, rather than for the crown. Their Romish priests, "burning with zeal to make new conquests for the church, penetrated the deserts of the New World and braved death in a thousand forms to baptize a child; glad to die a martyr's death if one soul could be thereby gained to the church by this nominal conversion." "The zealous fathers reckoned the number of conversions by the number of baptisms, and, as Le Clercq observes, with no less truth than candor, 'an Indian would be baptized ten times a day for a pint of brandy or a pound of tobacco.'" But the result of all this was a closer relation with the Indian tribes of America and a rapid growth of commercial intercourse between the Indians and French traders, who always followed the track of the Jesuits.

Thus the commercial and political influence over the

Indian tribes belonged almost entirely to the French colonies. Conscious of her power, France was anxious to increase it, as she witnessed the growth of the English colonies in number and prosperity. She foresaw the future struggles between the two nations for existence on the American continent, and did all she could to weaken the Indian faith in English honor and increase her own power over these heathen tribes. England, jealous of France, made similar efforts to secure the friendship of those tribes which surrounded her settlements. The Indian always was a babe in knowledge, and as much charmed by a string of glass beads as a child is with a new toy; and this susceptibility was appealed to, by both France and England, in annual presents of trinkets, and gaudy cloths, &c., to the various tribes, in order to strengthen their attachment. The agents of each nation vied with each other in purchasing treaties of alliance with their savage neighbors. Treacherous by nature, as well as by habit, so great was the instability of these allies that constant vigilance was necessary by each nation to keep their savage friends faithful to their contracts. Every means was used to make the Indian realize his obligation to the nation with which he had made treaties. England early set the example of delighting the vanity of the savage and binding him to her support by hanging around his neck medallic trinkets. On the principle that he is our master whose livery we wear, she decked such Indian chiefs as she desired to conciliate and win to her allegiance, with insignia of her power, in brilliant silver. Such a badge raised the chief greatly in the estimation of his own tribe, and made him the envy of his compeers.

I cannot ascertain at what period the French began to reward their Indian neighbors and allies with similar medallic honors. But they were not behind the English in this means of binding the uncertain element which surrounded their settlements. That tendency of human

nature which our Constitution recognizes when it forbids citizens who hold office under the government receiving any present, reward, or title from any foreign power, belonged as much to the red man as to the white. He seemed to know instinctively that wearing the royal honors of a foreign power was virtually paying tribute and acknowledging allegiance to that power. But it is evident that the Indian thought his allegiance was limited simply to the time during which he permitted that silver disc to lie on his breast, and that when he parted with it or lost it, his allegiance was ended. French and English alike played fast and loose with them in this matter. Whenever either nation made treaties with the Indians, and especially those tribes that had formerly been under the influence of any other foreign power, one of the first demands made of the tribes was the surrender of all medals given by, or bearing the insignia of, any other king or nationality. Thus also when the United States purchased the Northwest Territory from France, Lieutenant Pike, of the United States Army, was at once sent up the Great River to proclaim the authority of the United States, which he did, partly in demanding the surrender of all foreign medals in the possession of the Indian tribes, and by exacting from the British and French agents a promise that they would henceforth make no more such presentations.

A similar precautionary movement was made during the late war between the states. Fearing the interposition of the English government, in recognizing and aiding the Confederate States of America, the United States Indian agents were ordered to search among the Indian tribes for foreign medals, demand their surrender, and give American medals in their stead. One of these medals thus obtained from Menomonee chiefs, at this time, is preserved in the Wisconsin Historical Society (*Wis. His. Col.*, vol. IX., p. 124). A second copy exists in the collection of the United States mint.

The first medal having any reference to the American Indian, of which I have found any account, is that of the "Pamunky Indian medal."

Captain John Smith, in his History of Virginia, for which part of America he set sail in 1603, says: "Foureteene miles Northward from the river Powhatan is the river Pamavnkee, which is navigable 60 or 70 myles. * * * At the ordinary flowing of the salt water, it divideth itselfe into two gallant branches. * * * Where this river is divided the Country is called Pamavnkee, and nourisheth neare 300 able men." (*Vol. I., p. 117.*)

Again he says: "The fourth river is called Patawomeke, 6 or 7 myles in breadth. * * * It is inhabited on both sides. First, on the South side, at the very entrance, is Wighcocomoco, and hath some 130 men, &c., and the Patawomekes more than 200." (*Vol. I., p. 118.*)

It was the King of Pamunky whom Captain Smith took prisoner in 1608.

In the course of time these various Indian tribes that lay near the Jamestown settlement became as the Philistines to Israel, "a thorn in the flesh," and frequent collisions took place between them and the colonists.

In 1622, after the great massacre by the Indians, in which 347 colonists were slain, a general effort was made to exterminate the savages, an expedition being sent against the Pamunkies, with the others. These continual conflicts, while they did *not* exterminate, greatly reduced the number of the aborigines. In 1700 Beverly estimates that "in Prince William's county Pamunkie has about thirty bowmen, who decrease."

There is in the possession of Dr. M. P. Scott, of Baltimore, Maryland, a silver shield, oblong in shape, and varying from four to six inches in diameter, the centre being a slightly convex disc, bearing on its outer rim the inscription: "*Charles II., King of England, Scotland, France, Ire-*

land, and Virginia." Within this legend are the four quarterings of the royal house, the lion, the *fleur de lis*, the thistle, and the harp; while in one corner there is a figure supposed to be the tobacco plant, representing Virginia. The quarterings are surrounded by the garter, and the legend, "*Honi Soit*," etc. Below the central disc is an oblong surface with the inscription, "*The Queen of Pamunky.*" Above the disc is the figure of the crown of Great Britain. Attached to the back are five rings, to be used in fastening the medal. This medal was bought from the Indians at Fredericksburg, and is said to be in very fine order.

A somewhat similar medal was presented to the Virginia Historical Society in 1835, bearing the legend, "*Ye King of Pamunkie*," and is described as "a badge which the laws of the colony of Virginia at one time compelled the Indians to wear when they came within the limits of the white man's settlements." The reason of which is thus set forth in the Act itself, viz.:

"And because an intervall betweene the Indians and English cannot in the present nearnesse of seating be soe laid out as may wholly secure the English from the Indians comeing and pilfering, &c." (*Hening's Stat., vol. II., p. 141.*)

Mr. R. A. Brock, the learned Secretary of the Virginia Historical Society, reports a tracing of a third medal, once the property of the Society, and described as of an irregular oval form, bearing the inscription, "*Ye King of—*" on the *obverse* side of the planchet, and "*Patomeck*," on the *reverse*. On the *obverse* is a representation of a tobacco plant. These medals were doubtless all given by the crown as tokens of amity and a seal of allegiance.

The earliest official record that I have been able to discover of the issue of medals to the Indian tribes of America, is found in the "Propositions made by His Excellency, Robert Hunter, Captain General and Governor of New

York, to the Sachem of the Five Nations," Albany, August 16, 1710, during the reign of Queen Anne. In his address Governor Hunter says:

"Your brethren who have been in England, and have seen the great queen and her court, have no doubt informed you how vain and groundless the French boasting has been all along; how our great Queen's Armies have year after Year routed all his forces, taken his Townes, and is at this time near his principal town and seat of Government. Her Majesty has sent them, as a pledge of *her* protection and as a memorial to them of *their* fidelity, a *medall* for each nation, with her Royal Effigies on one side, and the last gained battle on the other, which, as such, she desires may be kept in your respective Castles forever. She has also sent her Picture in *silver*, twenty to each nation, to be given to the Chief warriors to be worn about their necks as a token that they should always be in readiness to fight under her Banner against the Common Enemy." (*Col. His. N. Y., vol. V., p. 222.*)

To this address the sachems of the Five Nations made this reply, which bears marks of having been written by the agent who delivered the proposition of the governor:

"The Great Queen of England has been pleased, as a pledge of her Protection, to send each of our nation a Medall, with her royal Effigies on the one side and ye last gained battle on the other, which we have received with all the satisfaction Imaginable, and will keep them ever in our castles, and bring the same down when any public and solemn Conferences are to be held, to show the same. We are also very thankful for the 20 pieces of silver she has been pleased to send to each nation, with her picture upon them, which our chief captains shall wear about their necks, and shall always be ready to fight under her banner against the common enemy." (*Col. His. N. Y., vol. V., p. 224.*)

I can find no mention of these medals in any volume on

the subject of numismatics. I judge the silver pieces, with the Queen's effigy upon them, to have been Queen Anne crown pieces. The coins of this queen were executed with remarkable skill.

The medals were, I judge, from the language of Governor Hunter, commemorative of the last victory of the English over European enemies. They were doubtless the silver medals struck in memory of the capture of Tournay, in 1709, with Queen Anne's bust on the *obverse*, and on the *reverse*, Pallas, seated, holding a shield and a mural crown on a spear; size, 25-16. It will be seen at once that these were not what may properly be called Indian peace medals, because no reference to the Indians occurs on the pieces.

George I. succeeded Queen Anne, 1714. Meanwhile France, led into intimate intercourse with, and knowledge of, the Indians, through the Jesuit fathers and the Canadian fur-traders, was quietly stretching out her arm and grasping all the territory that lay south of the lakes and establishing military posts at various points, contrary to the treaty of Utrecht, in which she agreed not to invade the lands of the Indian allies of Great Britain.

About 1716 Governor Spottswood, of Virginia, made his expedition to the trans-montane region of Virginia, and organized his famous "Knights of the Golden Horseshoe." On this expedition he discovered the military occupations of France, and advised the English government, wisely suggesting that a chain of forts be built across to the Ohio, and that settlements be formed here and there, to prevent the encroachments of France. To this advice the Crown paid no attention, nor did it awake to the necessity of adopting the wise plan of the Governor until nearly a half century later.

Meanwhile England and her Indian allies were peaceably pursuing the even tenor of their ways. Possibly this state of affairs may account for the fact that the medals which

George I. presented to the Indians were made of base metal, instead of silver; and from the device upon the *reverse* side, I judge they were not given as peace medals so much as rewards for faithful services.

The Indian medals of George I. are the first that bear any especial reference to the peculiar life and pursuits of the Indians. Each of the four medals which I here present for your examination, contains on the *obverse* the bust of George I., and on the *reverse*, the device of an Indian hunting the deer. Two of these medals have a historic connection that is interesting. Those which belong to my own cabinet were discovered about 1858, in the bank of the Ohio river, at Point Pleasant, West Virginia, on the spot where the bloody and stubborn battle of Point Pleasant was fought, in 1774, between the colonists, under General Andrew Lewis, and the combined Indian tribes, under Logan, Cornstalk, and Outacité; a battle which began one-half an hour before sunrise, October 10, 1774, and continued, almost without cessation, until sunset the same day. It is more than probable that these two medals were worn by Indian chiefs on that day, and were lost in the conflict or in the flight. They were presented to me by the late Dr. Samuel Glover Shaw, of Point Pleasant, from his very rich collection of pre-historic and Indian remains. In describing these five medals, I will begin with that one belonging to the Society:

- i. WYOMING MEDAL.—*Obverse*, Military bust of George I., draped and laureated, facing right. Legend "*George King of Great Britain.*" The bust of the king is 20-16 in length and 16-16 across the shoulders. *Reverse*, Under a tree to the left stands a deer on a hill. To the right, at the foot of the hill, stands an Indian, with a bow drawn, and in the act of shooting the deer; over all, the sun with his rays. Thin planchet. Copper. Looped. Size 25-16.

This medal was included in the Collection of Coins, Medals, Minerals, &c., of Harmon A. Chambers, Carbon-dale, Pa., which was purchased and presented to the Wyoming Historical and Geological Society in 1858, thus forming the nucleus of the valuable collections now owned by this Society. The medal is described in Mr. Chambers' catalogue as "one of the medals presented by George I. to the Chiefs of the Six Nations in 1716." (p. 11).

As there was no conference with the Indians by any of the colonies of Great Britain in 1716, Mr. Chambers' conclusions are merely conjectural. It may have been presented at the conference of the Governor of New York and the Six Nations in 1715 or 1717, but in the very full account of those conferences no reference whatever is made to this or any other medal. Where Mr. C. procured this medal and what its local history, I cannot ascertain; but the above account of it disposes of the impression which somehow has prevailed, that it was the copy referred to by Mr. Miner, or had been received by this Society from the Historical Society of Pennsylvania.

2. POINT PLEASANT MEDAL.—*Obverse*, Military bust of George I., draped and laureated, facing right, and 2-16 larger than the head of No. 1. Legend the same as No. 1, "*George King of Great Britain.*" *Reverse*, Same as No. 1, except that the hill is higher, the tree shorter and the Indian larger. Planchet 1-16 thick. Brass. Looped. Size 26.
3. POINT PLEASANT MEDAL.—*Obverse*, Military bust of George I., facing left, and laureated. Legend *Georgius*, —*Mag. Br. Fra. et Hit. Rex.* *Reverse*, Under a tree to the right, which follows the curve of the planchet, an Indian is standing in the posture of one about to run. He holds in his hand a bow from which the arrow has just been discharged. To the left, under a second tree

which follows the left curve of the planchet, is a deer running at full speed. Between the Indian and the deer stands a bush at the foot of which lies what appears to be a dead deer. There is no sun on the medal. Planchet very thin. Brass. Looped. Size 16.

4. STEARNS MEDAL.—*Obverse* and *Reverse* the same as No. 2. Copper. Looped. Size 26.

The only copy of this George I. medal that I have discovered in sale catalogues of coins is No. 2183 of the Jewett sale, January, 1876, placed among *Bronze* Medals. Hence, supposed to be a copy of No. 2. It brought \$6.00.

One of these medals was sold in the Bushnell sale, June, 1882. No. 255.

5. JENKINS MEDAL.—*Obverse*, Military bust of George I., 12-16 across the shoulders, and 13-16 in length, while the others are 18-16 and 21-16. The hair does not fall over the back in a queue but is confined closely by the fillet, which is composed of 12 leaves, and is much smaller than the others. The legend, "*George King of Great Britain*," extends over $\frac{7}{8}$ of the circumference, while in the other it is only about $\frac{5}{8}$. *Reverse*, The sun; a very large Indian to the right throwing a javelin at a very small deer, which stands to the left at an angle of 40° from the Indian. Copper. Very thick. Size 24.

This medal, now in the possession of Hon. Steuben Jenkins of Wyoming, Pa., was found on the banks of the Susquehanna at Sunbury, by Mr. J. H. Jenkins.

A copy of No. 2 is known to be in the Historical Society of Pennsylvania. It is described in Miner's History of Wyoming, p. 27, and is represented there by an engraving. It will be recognized as a duplicate of No. 2. Mr. Miner gives this account of its discovery. After a general description of the remains of ancient fortifications in the Wyoming Valley, he refers to one "on Jacobs' Plains, or the

upper flats in Wilkes-Barré;” gives a detailed account of its appearance, and continues, “in 1814 I visited this fortification in company with the present Chief Justice Gibson and Jacob Cist, Esq. The whole line, although it had been ploughed for more than thirty years, was then distinctly traceable by the eye. Fortune was unexpectedly propitious to our search, for we found a medal bearing on one side the impress of King George the First, dated 1714 (the year he commenced his reign), on the other an Indian Chief. It was awarded to Mr. Cist, as the most curious and careful in such matters, and by him was deposited with the Philadelphia Historical Society.” Mr. Miner adds, in a note, “Should it not be placed with the Indian relics in a museum to be formed in Wilkes-Barré?” I courteously commend this suggestion to the Historical Society of Pennsylvania. I think Mr. Miner must be in error as to the date, as none appears on the engraving of the medal, and none appears on any of the four medals just described.

I have stated that this medal described by Mr. Miner is a duplicate of No. 2, but *if* the engraving given in Miner is an *exact* counterpart of the medal, it should be classified as a variety of No. 2—from a different die. In the engraving four stars appear near the sun, and a forest of trees in the distance beyond the Indian and the deer. It is possible that these additional figures were also struck on the medals just described, but if so, they have dissappeared, as the medals are all much worn and corroded. Other copies of this medal have been discovered in the State of Pennsylvania, but I have had no time to ascertain their present whereabouts.

In 1835 *The Columbia Spy* contained the following item: “A brass medal has been left at this office, which, together with several articles and a human skull, were dug up a few days since in Wrightsville, York county, Penn’a. It bears on one side a head, with the inscription, “*George King of*

Great Britain," and on the other an Indian with his bow and arrow in the act of shooting a deer. It appears to be worn as an ornament in the nose or ears. There were found also two others of similar description—a brass kettle—a string of white beads, one and a half yards in length—some red paint and twenty-five rings, one of which was dated 1716." *Haz. Ann.* xv. 336.

Pursuing this subject chronologically I find a medal of Louis XIV. of France, mentioned as having been presented to the Canadian Indians during the early years of the eighteenth century. It is very doubtful, however, if it was struck with any reference whatever to the Indians. It presents on the *Obverse* the head of Louis XIV., with the usual Legend, "*Ludovicus XIV., D. G. Fr. et Nav. Rcx.*" *Reverse*, the bust of the Dauphin, and under that the busts of the Dukes of Burgundy, of Anjou, and of Berry, the three children of the Dauphin. Under each bust is the respective name and title. Surrounding them is the legend, "*Felicitas Domus Augustae*;" and in exergue is the date "1693." This medal was supposed to be one of the regular series of Louis XIV., and again it is said to have been struck to commemorate the birth of the Duke of Berry. However, it was used by the French as a reward to the Indians, who cared very little what occasion called it into existence. It is of silver, with a ring attached, and was found in the possession of an old Indian family of the Huron tribe near Quebec. Mons. Rhaume, Curator of the Numismatic Museum, Quebec, asserts that it was "a medal of reward granted to the Indian chiefs by the king, for bravery, just as these large silver medals were given by George II. and George III. The historical medal bears only the name and birth of the Duke of Berry, 1686, while this contains the name of each son and the date 1693. I do not know of another copy existing." Mons. Rhaume's statement is supported by a letter from Mother Mary, of St. Helena, dated

Quebec, October 17, 1725, who, after mentioning the Indians, says: "Louis XIV., had sent silver medals of considerable size, on one side of which was his portrait, and on the other that of the Dauphin, his son, and that of the three princes, children of the latter, to be given to those who should distinguish themselves in war. To them has since been attached a flame colored ribbon, four fingers in breadth, and the whole decoration is highly prized among them. When a chief dies he is honorably buried, a detachment of troops parade, several volumes of musketry are fired over his grave, and on his coffin are laid a sword crossed with its scabbard, and the medal under consideration fastened upon them." (*Am. Jour. Num. XI. 93.*) These medals are so extremely rare that I judge very few were presented to the Indians, or else, as Mr. Rhaume suggests, the English destroyed them after the conquest of Canada.

A letter is extant in the archives of Paris, written by Governor Vaudreuil, of Canada, under date of September 21, 1722, in which he says: "I have received the letter with which the Council has honored me and the twelve medals bearing the portrait of the king, eight small and four large ones. I have continued to be careful not to be too lavish with this favor among the Indians, and to give them only to those who by their services to the nation deserve them, and to those whom I desire to bind to our interest by this mark of honor."

In 1727, August 22, M. Beauharnais, the natural son of Louis XIV., and made Governor of Canada by Louis XV., wrote as follows: "Since the death of Mr. Vaudreuil, the Rev. Father Jesuits have not asked medals for the chiefs of the settled Indians for whom it was customary for them to ask some. The Rev. Father de la Chasse, to whom the Marquis de Vaudreuil had given one, tells me it is absolutely necessary to provide some more. I have received proof of this. The Indians from above, when they come down to

Montreal, would not relieve me from promising them to several who have served us well among their tribes. I pray you to enable me to satisfy these savages and to send me a dozen small medals and six large ones. If this number is not sufficient for the year, I shall have the honour to ask some next year, but I shall take good care to cause them to be valued and to give them only to those who shall deserve them on account of real services."—(*Am. Jour. Num., Mr. R. W. McLachlan, XVIII., 84.*)

In 1737 M. Beauharnais wrote to the Count de Maurepas, one of the French Cabinet, as follows :

OCTOBER 15, 1732.

I thank you, my Lord, for the twelve medals you had the goodness to send me for the Indians. His Majesty may be assured that I will make the most of them and that I shall not distribute them except to Chiefs where services and attachment to the French will be known to me. As there are many such to whom I have promised such a token of honour, and as the adventures of our Iroquois and Hurons against the Foxes, places me under the obligation of giving a few to the principal Chiefs of the Expedition, I beg you, my Lord, that some be sent me next year, so that I may be enabled to invest them with this mark of honour, which also renders them more respectable among their people."—(*N. Y. Col. Rec., IX., 1036.*)

The Marquis Duquesne, Governor of Canada, writes thus to M. Machault, Minister of the Colonies :

QUEBEC, 13 8ber 1754.

"Abbe Piquet's mission, reported by our domesticated Indians to be made up of spies of the Five Nations, has just given the strongest proof of attachment and fidelity by sending me the medal the English had presented to some of that village who had furtively assisted at the Council at Orange,

and they have expelled one of the brethren who was suspected of having an English heart."—(X., 262.)

December 20, 1756, at a conference between M. de Vau-deville, Governor General of Canada, and the Indian deputies of the Eight Nations, two English medals were surrendered. At which time Kouee, an Oneida Chief, said :

"Father, we cannot retain two medals which we have formerly had the folly to accept, from our brethren, the English, as a mark of distinction. We acknowledge that these Medals have been the true cause of our error and that they have plunged us into bad business. We strip ourselves of them. We cast them from us in order not to think any more of the English."

Parkman, in his fascinating volume on Montcalm and Wolfe, describes a medal worn by one of the Abenakis of St. Francis, as seen by Roubaud the Jesuit Missionary, as having "the king's portrait on one side, and on the other Mars and Bellona joining hands, with the device "*Virtus et Honor.*"—II., 480. This was not an Indian medal, but one of the many bronze medals of Louis XV., struck to commemorate home events.

What medals for distribution amongst the Indians were struck during the reign of George II., of England, 1727-1751, I have not been able to learn. During the reign of George III. a variety appeared. Dr. E. B. O'Collaghan, whose name is a sufficient guarantee of the correctness of his statements, sent the following note in 1865 to the Historical Magazine, in which it appeared, September, 1865.—*Series I., Vol. IX., 285.*

"Sir Danvers Osborne, after he had been appointed Governor of New York in 1753, brought out among other presents for the Six Nations thirty silver medals; his Majesty's picture on one side, and the Royal Arms on the other, with

silver loop and ring, in shagreen cases, with a yard of the best broad scarlet watered ribbon, silver hooks and eyes. Though these medals seem to have disappeared, possibly a stray one may be found in some collection.—*E. B. O.*"

I take it that this is the medal described by Sandham in his "Supplement to the Coins of Canada, No. 59." He gives three sizes, 48-16, 25-16, and 38-16, and describes it thus:

Obverse, Bust of George III., in armor. "Georgius III. Dei Gratia." *Reverse*, Royal Arms. No date. Size 48. A copy of this medal was sold in the Jewett Collection, January, 1876, for \$24.00, and is described there thus:

"No. 1141, Indian medal (silver). *Obverse*, Bust of George III. Young head. *Reverse*, Arms of England. Size 48."

The following note is added: "This medal was struck for distribution to the Indian chiefs, and the present one was obtained from the grandson of 'Noon Day,' an Ottawa Chief."

In the American Journal of Numismatics, XII., 48, will be found an article on "An Old Indian Medal," issued 1757, during the reign of George III., by a society in Philadelphia called the "Friendly Association for Regaining and Preserving Peace with the Indians by Pacific Means." In Vaux' life of Anthony Benezet an engraving of this medal is to be seen, and the following description of it: *Obverse*, The Head of George III. to the left, and the inscription, "*Georgius III. Dei Gratia.*" *Reverse*, An Indian and a European seated at a Council Fire, the latter pointing with the Calumet, or pipe of peace, towards the sun, near the zenith. This device is surrounded by the legend, "Let us look to the Most High, who blessed our Fathers with Peace." Mr. Vaux says this medal was the *first* attempt in that department of fine arts in Pennsylvania. Size 28. Bronze. Of this medal No. 2186 Jewett sale, January, 1876, brought \$1.50. A copy brought in the Nixsen sale, October, 1871, \$3.00. One in the Cleveland sale, May, 1872, \$3.25. Three

were sold in the Bushnell sale, June, 1882, one of which was in Tin, size 27½, one in Silver, and one in Bronze, each size 28. Another was sold also in the Sampson sale, February, 1884, but the prices of these last have not been learned.

In the Cogan sale, December 20, 1877, a medal was sold, which I take to be the Philadelphia medal, described however on the Reverse as "Wm. Penn offering the pipe of peace to the Indian."

During the reign of George III. a curious Indian medal appeared, an engraving of which is before me in Sandham's Supplement to the Canadian Coinage. Mr. McLachlan, in the very interesting paper referred to above, treats of it at length. A copy was sold in the Bushnell sale, June 20, 1882, No. 286, for \$29.00, purchased by Mr. McLachlan, and is thus described by Mr. Sandham, Supplement, No. 75: *Obverse*, View of Montreal in 1760, with fortifications. "Montreal." In exergue in an oval depression the letters, "D. C. F." *Reverse*, At top, engraved, "Tankalkel." In centre in Roman letters "Mohigeans." Size 29. Looped. Silver.

A copy of the same medal sold with the collection of I. F. Wood, May, 1873, for \$18.00, but it was struck in white metal.—(*Wood, No. 1169.*)

Mr. McLachlan thinks this is the medal referred to by Sir Wm. Johnson, Bt., in his diary under date of July 21, 1761, *vide* Stone's Johnson, II. 435, where he says: "Got everything on board the vessel (for Niagara), there met the Onondaga and other chiefs. When assembled I bid them welcome, &c., &c. Then delivered the medal sent me by the General for those who went with us to Canada last year, being twenty-three in number." Colonel Stone says, (*II.*, 144), "these medals, by order of Amherst, were stamped upon one side with the Baronet's Coat of Arms."—(*McLachlan. American Journal Numismatics, XVIII., 84-87.*)

Mr. McL. refers in his paper to an excessively rare medal

of 1764, which has on the *Obverse* the head of George III., and on the *Reverse*, a white man and an Indian seated under a tree on the sea shore, surrounded by the legend, "*Happy while United.*" Of this medal I have never heard before.

Professor James D. Butler, L.L. D., of the Wisconsin Historical Society, in a valuable paper on the Early Historic Relics of the Northwest (*Collection Wisconsin Historical Society, IX., 125*), presents a copy of a document now in the possession of the Historical Society, which is printed in English and French, and which is as follows:

"Frederick Haldimand, Captain General and Governor in Chief of the Province of Quebec, &c., &c., &c., General and Commander in Chief of His Majesty's forces in said Province and frontiers, &c. To Chawanon, Grand Chief of the Folles Avoines (*Menomonees*). [Red Seal.]

In consideration of the fidelity, zeal and attachment testified by *Chowanon, Grand Chief of the Folles Avoines* to the King's Government, and by virtue of the power and authority in me vested, I do hereby confirm the said *Chawanon, Grand Chief of the Folles Avoines*, aforesaid, having bestowed upon him the *Great Medal*, willing, all and singular, the Indians, inhabitants thereof, to obey him, as *Grand Chief*, and all officers and others in His Majesty's service to treat him accordingly. Given under my hand and seal at arms at Montreal, this *seventeenth* day of *August*, one thousand seven hundred and seventy-eight, in the *eighteenth* year of the reign of our sovereign Lord George III., by the Grace of God, of Great Britain, France and Ireland, King, Defender of the Faith, &c.

FREDERICK HALDIMAND."

This document is a printed form with blanks for names and dates to be filled up as occasion required, and in size 8x12 inches, with a red seal. The word *Medal* is also printed. No medal accompanies the document, so that we are left to conjecture what its design may have been. It

may have been simply some of the regular historical medals of Great Britain struck in connection with its Canadian history.

I have but one other medal of this character to notice. Professor Butler, in the paper above referred to, gives an account of a Spanish-Indian medal, discovered at Prairie du Chien, about 1864, and now the property of the Wisconsin Historical Society. Its description is as follows :

Obverse, A bust 24-16 in height, clearly stamped. Surrounded by the legend, "*Carlos III., Rey D'España, e de Las Indias*"—"Charles III., King of Spain and the Indies." *Reverse*, Within a wreath of Cactii, which is tied with ribbons, the words, "*por merito*," the word "merito" covering more than 17-16. Size 36; silver, weighing 776 grains.

Professor Butler thinks this medal was presented to Huisconsin, a Mitasse chief of the Sauks and Foxes, November 20, 1781, by Don Francisco Cruzat, the Spanish Governor.

I notice, in the personal Narrative of Captain Thomas G. Anderson, who was active under the English in the capture of Prairie du Chien, during the war of 1812, the following record :

"Some of the Indians in this quarter had been induced by exaggerated stories from the enemy to surrender the Royal George medals which they had received as tokens of friendship from General Haldimand, Lord Dorchester, and other prominent commanders in the early days of Quebec, for those of the American eagle. However, they soon returned to their old flag." (*Wis. His. Soc. Col., vol. IX., p. 196.*)

This medal has the Royal Arms on the *Reverse*, with the Lion Supporters.

I have examined over 200 coin catalogues in my library, covering a period of thirty years, with reference to the medals which I have just been describing, with the foregoing

result. It might have been richer if time for more complete examination had been plentiful, as I am sure the subject has not been exhausted.

It may not be generally known that it has been the custom, during each presidential term of the United States, since the election of George Washington, for the United States mint at Philadelphia to issue silver and bronze medals for distribution to the chiefs of the Indian tribes. These medals, usually round or oval, bear on the *obverse* the bust of the president of the United States, with his name and title of office; on the *reverse*, some device, such as the President offering his hand to an Indian; or two hands clasped; calumet and tomahawk; or Indian and farmer. A full set of these, in bronze, can be found in the Bushnell sale (pp. 79-105), one or more under each presidential name. Their history and description would make a very interesting paper.

The medal which appears on all the portraits of Red Jacket is one of this series, it having been prepared by order of President Washington, for presentation to that famous Indian orator. I am not satisfied that this is the only one of the Washington Indian medals that was issued.

The value of these presidential medals may be learned by the description of several in Cogan's sale of November, 1877, all silver:

971. MILLARD FILLMORE MEDAL, 1850.—Size 41; weight, in silver, \$4.25. Sold for \$5.50.
972. JAMES K. POLK MEDAL, 1845.—Size 33; weight \$2.33. Brought \$2.75.
973. ZACHARY TAYLOR MEDAL.—Size 33; weight \$2.33. Brought \$3.50.
974. ABRAHAM LINCOLN MEDAL.—Size 48; weight \$6.53. Brought \$13.00.
976. ANDREW JOHNSON MEDAL.—Size 48; weight \$6.58. Brought \$6.25.

SILVER AND COPPER MEDALS.

It needs, that I have no fuller account of so
many medals in American Numismatics, and Amer-
ican Numismatics, than that which I have just presented
to you. I have drawn these facts from my own private
collections. You may judge how much more might
have been done with larger resources at hand.

REPORT ON SOME FOSSILS FROM THE LOWER
COAL MEASURES NEAR WILKES-BARRE,
LUZERNE COUNTY, PENNSYLVANIA. By
PROF. E. W. CLAYPOLE.

[Read before the Society December 12, 1884.]

This collection consists of specimens picked out from the shelves of the museum of the Wyoming Historical and Geological Society of Wilkes-Barré. They are for the most part badly crushed and broken, some of them being mere fragments whose recognition is almost impossible. Those among them which are in the best condition, or those which present some characteristic feature or features, I have referred to the species to which the evidence leads me to think they belong. I wish however to make it distinctly understood that in many cases some measure of doubt remains in regard to the identification which can only be removed by obtaining better specimens.

It will be seen that the species referred to in this list belong to widely separated geographical districts and to geological horizons differing to a considerable extent. There is nothing however in these facts that should cause us any surprise. Species, so called, are not absolutely limited by these artificial divisions. Many of them range through several geological formations and over great part of the known world. The well-known *Atrypa reticularis*, for example, is found under some form or other from the base of the Upper Silurian to the top of the Devonian (except in the Oriskany sandstone) and on both sides of the Atlantic. Indeed the question may be asked whether or not we are sometimes too much governed by stratigraphical considerations in determining the species of fossils. One is sometimes ready to suspect

that forms which would be identified if found in the same stratum are distinguished because they occur in different strata.*

Especially is this to be apprehended when the species is based on a single specimen as its type, which is frequently done. How many species might be made out of a single existing well limited specific form if every accidental variety were considered apart from its connecting links or without regard to its own abnormal deviation from the form of its ancestors and descendants.

The advance of our knowledge of fossil life, aided as it will be by the establishment of local societies for the study of Nature, must, by developing local collections, tend to show us old species in new places and on new horizons. Species from below will be found to rise and mingle with those belonging to higher levels. The hard lines of demarkation drawn between system and system, and between group and group will be blurred, and old distinctions will grow less distinct. It is idle to suppose or believe that systems constructed in the infancy of the science can exist as maturity

*A good illustration of this remark may be found attached to the description of *Pleurophorus costatiformis* M. & W. (Proc. Acad. Nat. Sci., Phil. 1865, p. 247), where the writer says: "Though we propose to name this as a new species, we confess that if we had found it in Permian strata, we should have, from its external character at least, referred it to *Pleurophorus costatus*, Brown, (sp.). Indeed it seems to be as nearly like Prof. King's principal figure of that species (Perm. Foss., pl. XV., fig. 13.) as any other individual specimen could possibly be expected to be, and more nearly like it than any other figure of that shell which we have ever seen. Nevertheless, from the different horizons occupied by these shells, we have scarcely a doubt that if we could see the hinge and interior of that now before us, good specific differences would be observable."

This is equivalent to saying that in the present state of our knowledge these two names are synonymous. A better plan would be to refer the later to the already existing species and leave the distinction to be set up when distinctive marks are discovered.

approaches. The scaffolding must give way to the perfect building. Facts present themselves in a new light with increasing knowledge, and statements supposed, but wrongly, to be founded on facts are seen to be baseless. Palæontology in America is rapidly outgrowing its infancy, and the laws which aided its early development, if not relaxed, will check its free expansion.

The groups and systems moreover laid down in one part of the country, for example in the State of New York, cannot reasonably be expected to exist in perfect identity everywhere or anywhere else. Already, during my investigations in Pennsylvania, I have discovered marked and striking proofs of divergence from the New York types, both in association and range of fossils. Some details on this point will be found in the report on Columbia and Montour counties by Prof. I. C. White. Others will be published in my own report on Perry county, now in the press. (Published in 1885.) A few others will be noted in this paper.*

I.

In illustration of these remarks I may quote the following instances from the list of fossils here discussed:

Solenomya anodontoides (Meek,) is the most abundant shell in the collection from Wilkes-Barré, in the Lower Coal Measures. This same species, in specimens and matrix scarcely distinguishable, is common in the Cuyahoga shale of this county (Summit, Ohio). The Cuyahoga shale is

*A somewhat remarkable instance of this kind has quite recently come under my observation. The carboniferous Trilobites have been hitherto restricted to the genera *Phillipsia* and *Proetus*, with even and rounded tails. But I have lately seen a form from the Cuyahoga shale of the lower carboniferous of this county (Summit, Ohio), showing a fimbriate or spinous pygidium like those belonging to the genus *Dalmanites*. A note on the fossil appeared in "Science" of May —, 1884, and a full account will be published soon elsewhere. (See *Geol. Mag.*, July, 1884).

here the uppermost member of the lower carboniferous, the higher beds of the group being absent. It is almost certainly below the mountain limestone which in southeastern Ohio and southwestern Pennsylvania forms a conspicuous horizon. Consequently there is a considerable interval between the two levels—the Lower Coal Measures in Luzerne county, Pennsylvania, and the Cuyahoga shale of Summit county, Ohio,—during all which we must admit the existence somewhere of this species, *Solenomya anodontoides*. In a general way and without descending to detail which would be here out of place, the relative position of these beds may be shown by the following section :

LOWER PRODUCTIVE COAL MEASURES.

Lower Carboniferous.	{	Conglomerate with Interconglomerate Coals, Nos. 1, 2, 3, and 3a. Mountain or Lower Carboniferous Limestone. Logan Group—Sandstones and Shales—of Southern Ohio. Cuyahoga Shale. Berea Shale. Berea Grit—Waverly Sandstone. Bedford Shale. Cleveland Shale.
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Palæoneilo Bedfordensis is another species of which the same may be said in a higher degree. Described by Meek from the Bedford shale of Cuyahoga county, Ohio, which, as may be seen from the above given section, underlies by a considerable interval the Cuyahoga shale, it reappears in the collection from Wilkes-Barré in the Lower Coal Measures of eastern Pennsylvania. Specimens of the species which I have collected from the Cuyahoga shale near this city, (Akron, O.,) are absolutely undistinguishable from Meek's figures and description. To this species we must therefore assign a yet greater range than was given to that mentioned above, namely, from the Bedford shale of the Lower Carboniferous to the Lower Coal Measures.

Another case in point is *Grammysia (Allorisma) Hannibalensis*, (Shumard,) in the collection from Wilkes-Barré.

This species was described in the Geological Report of Missouri, 1855 (Vol. II., p. 206), from the Kinderhook group of that state. The Kinderhook is the lowest bed of the mountain limestone in Missouri and some adjoining states. Consequently the geological range required to extend a fossil from the Kinderhook to the Lower Coal Measures is less than that given in the two cases already mentioned. The geographical range however is much greater; the distance from Missouri to eastern Pennsylvania being at least double that from the latter to Ohio. As if, however, to bridge over the interval and to assimilate the three cases, the same species occurs in the Cuyahoga shale at Akron, Ohio. Specimens which I have collected here are indistinguishable from Shumard's figure, and in all visible and ascertainable points from those sent to me from Wilkes-Barré. Taking this fact into account we have a third species ranging from the Cuyahoga shale of the Lower Carboniferous in Ohio to the Lower Coal Measures of Pennsylvania, and in this case occurring also in the intermediate Kinderhook limestone in Missouri.

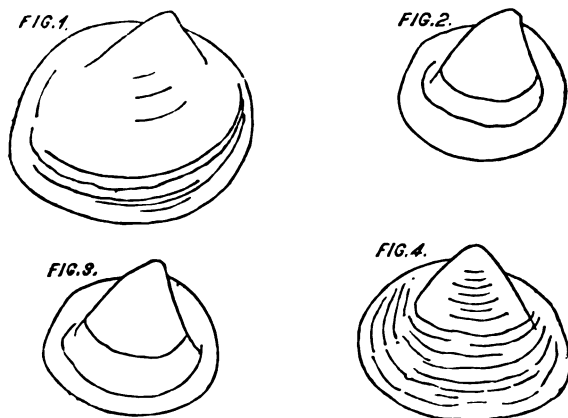
But the most remarkable instance furnished by this collection from Wilkes-Barré is the shell which I have identified with *Schizodus quadrangularis*, figured by Hall from the Chemung of New York and the Waverly of Ohio. (Pal. N. Y., Vol. V.) No description of this species has yet appeared, so far as I am aware. In the "preliminary notice of Lamellibranch shells," (1870), the last page concludes with a few lines concerning it. The remainder was, I believe, destroyed by a fire in the publishing house, and has not yet been reprinted. From this partial description and the figure no doubt however can remain of the identity of the two shells, that from Wilkes-Barré and that from the Chemung of New York.

As Prof. Hall gives this species a range from Chemung to Waverly it is fair to infer that he has received specimens

from the Waverly group of Ohio. Not having yet seen it in Ohio I do not know in what division of the Waverly group Prof. Hall's specimen was found. I have however a shell from the Chemung rocks in Montour county, Pennsylvania, which I have identified with Prof. Hall's *Sch. quadrangularis*. This specimen is an almost perfect facsimile of that from Wilkes-Barré, so that even should the nominal identification admit of dispute, which I do not think is the case, the fact of the real identity remains, and we have an instance of survival from the Upper Chemung to the Lower Coal Measures.

In order to illustrate this case, which is somewhat striking, I have figured in outline the three specimens above alluded to, and have also added for comparison a copy of Hall and Whitney's *Dolabra Alpina*, from the Lower Coal Measures of the Des Moines Valley, Alpine Dam, Iowa.

- Fig. 1.—*Schizodus quadrangularis* . Pal., N. Y., Vol. V., pl. 75.
 Fig. 2.— " " . Coal Measures, Wilkes-Barré.
 Fig. 3.— " " . Chemung, Montour Co., Pa.
 Fig. 4.—*Dolabra Alpina* Lower Coal Measure, Iowa.



II.

I have here dwelt on only those specimens of whose identity with the species to which I have referred them I feel fairly confident. Were several of the others in better condition a much stronger case could probably be made out. The bad preservation of most of them is especially to be regretted considering their scarcity and consequent interest. It may be observed that most of the species with which the Wilkes-Barré specimens are compared are from the West. It can scarcely be doubted that some day a much greater geographical range will be assigned to our Eastern and Western forms, and that many now bearing different names will be found identical. It is of little use however to build on insufficient foundations, and it is wiser to await the discovery of better specimens than to publish positive identifications on insufficient material, or to manufacture new so-called species which cannot be satisfactorily defined.

The conditions of deposition form in some of these cases a difficulty as great as those of geographical and geological range. At first thought it seems unlikely that species inhabiting the open sea of Missouri, Iowa and Illinois should have also left their remains in the coal-swamps of eastern Pennsylvania. Had these swamps consisted of fresh water the objection would be weighty indeed. But the list of species precludes this supposition, and the occurrence of a few crinoidal joints renders it totally impossible. According to the usually accepted analogies these beings were inhabitants of the open sea and the clear waters. A sea therefore that allowed the growth of crinoids, whether a bay or open ocean, could not be hostile to the growth of such other marine organisms as those whose names are given in the list below.

The total absence of brachiopods is also noteworthy and may perhaps be taken to indicate shallow water as one of the conditions of life and deposition.

III.

BELLEROPHON SUBLÆVIS. (HALL.)

Trans. Alb. Inst., 1856.

A small Bellerophon, much broken, but agreeing closely in all important points with that quoted above, occurs among the specimens from Wilkes-Barré. I have therefore referred it to that species.

Prof. Hall's specimens were found in the Lower Carboniferous Limestone of Indiana and Illinois.

BELLEROPHON NAUTILOIDES.

Winch., Proc. Ac. N. S., 1862, p. 427.

This is a small but well preserved fragment of a beautiful little shell exactly agreeing with Prof. Winchell's description in all ascertainable points. The type specimen was found in the Marshall group of the Lower Carboniferous of Michigan. It is beautifully and finely striate longitudinally over the whole surface including the carina which is not elevated or depressed, but limited by two longitudinal lines rather more distinct than the rest.

BELLEROPHON PERCARINATUS.

Con., Jour. Ac. Nat. Sc., Vol. VIII. p. 268.

I can see no difference between Conrad's brief description and the specimens here referred to this species, except that the transverse ribs are not *acute*, otherwise it coincides well with Conrad's description and figure.

Conrad's specimen was found in the black shale overlying coal No. 7., Allegheny Mountain inclined planes.

CAPULUS ACUTIROSTRIS.

Hall, Trans. Alb. Inst., 1856.

Two crushed and broken specimens which do not admit of identification may and probably do represent this species which was described from the Lower Carboniferous Limestone of Indiana and Illinois.

AVICULOPECTEN COXANUS.

Meek & Worthen, Proc. Acad. Nat. Sc., Phil., 1860, p. 453.

No figure of this species has been published, so far as I am aware, but Meek's description (l. c.), and his remarks appended to the description of *Av. Winchelli* (Pal. Ohio, vol. II., p. 296), combine to make the identification satisfactory. It may be remarked that the specimen here referred to is the right valve. Prof. Meek's description applied to a left valve from the shale of the coal measures of Illinois.

PECTEN MISSOURIENSIS.

Shumard, Geo. Rep. Mo., 1855, p. 207.

Two small, badly broken specimens, apparently represent this species, which was described from the lower carboniferous limestone (St. Louis group) of Missouri.

MODIOLA WYOMINGENSIS.

Lea, Jour. Ac. Nat. Sc., vol. II., Jan. 1853, p. 203.

One specimen in this collection I have referred to this species of Mr. Lea, but with some hesitation. It corresponds well in size, but the original type, judging from a tracing of the figure (l. c.), for which I am indebted to the kindness of Mr. E. B. Harden, is so imperfect that it is impossible to feel much confidence in a definition based upon it. Only a half, and that the lower and least important one, existed on the stone, and the fact that Mr. Lea thought such material worth description, speaks volumes for the rarity of fossil shells among the Wilkes-Barré coal-beds.

SOLENOMYA ANODONTOIDES.

Meek, Pal. Ohio, vol. II.

Though no single specimen is in good condition, yet comparison of many enables me to refer them with confidence to this species. This is the most abundant of all the forms in the collection, and seems to occur in great numbers in the black shales. The shells are flattened and usually crushed.

Meek's specimen was obtained in the
at Newark, Ohio.

MODIOMORPHA (?) PARVA

Shell very small, not exceeding half a
erately convex. Hinge-line straight
the posterior end of the shell. Be-
terior nearly terminal. Posterior
near base, gradually rounding into th
margin nearly straight and parallel or
hinge-line. Faint indication of a rounded
from the beak to the postero-basal margin.
Ligament external.

The specimens above described, and which I
to any published species, seem to be abundant
shales, as I have found ten specimens in the sm.
examined. Some of these are very minute,
they are expanded, with both valves in apposit
connected by the hinge. I have placed it
Prof. Hall's genera, although I can find no
deeming it better to do so than to form a
slender base.

GRAMMYSIA HANNIBALENSIS.

Shumard, Geol. Mo., 1855, p. 206.

The two specimens which I have referred to
are very imperfect, but in every respect,
they resemble those which occur in the
northern Ohio.

This is the third species occurring in the
have recognized among the specimens from
Prof. Shumard's type was found in the
limestone, at Hannibal, Mo.

PALAEONEILO BEDFORDENSIS

Meek, Pal. Ohio, vol. II.

A single specimen, well preserved, agrees so

He
I said, for comparison,
the Paleontology of Iowa.
and too conspicuously en-
ved on this specimen, but
on the others, which are
(?) is from the lower
Alpine Dam, Iowa.
LIGAMENT (?).
is an inch long and strongly
connected with the above
It is, however,
the Carboniferous shale,
slender base.
is of considerable
and such fossils in
the Carboniferous coal field. The
I have seen, in thirty years
the present day.
into small impressions of mol-
connected with the
thirty years' obser-
of the kind. This
had been
above Wilkes-Barre
has several spec-
are accompan-
to the charac-
the value of the
It is
so many
with

Meek's figure and description, given in the place above cited, that the identity of the two seems beyond question. Meek's specimen came from the Waverly Group, of Ohio, the Bedford shale, at Bedford, Cuyahoga county, Ohio.

SCHIZODUS MEDINENSIS.

Meek, Pal. Ohio, vol. II.

The imperfect condition of this specimen, in some of its parts, makes their identification slightly doubtful. But the general resemblance is so strong that I have little hesitation in referring it to Meek's species, as above quoted.

SCHIZODUS QUADRANGULARIS.

Hall, Pal. N. Y., vol. V.

The shell which I refer to the above species is in a fair state of preservation, except near the hinge, and is obviously a Schizodus, though the teeth are not visible. It so precisely agrees with a specimen in my possession, from the Chemung rocks of Montour county, Pennsylvania, that I feel no hesitation in adopting the above specific name. I have given the outlines of both, below, for comparison. Except an almost imperceptibly greater degree of angularity in the antero-basal region of the Chemung fossil, there is absolutely no difference, except in size.

This species is remarkable in the collection on account of the great vertical range which the identification involves. Prof. Hall's specimens are marked from the Chemung and Waverly groups. This one comes from the coal measures. It consequently extends the species through the Catskill, Pocono, Mauch Chunk, and Pottsville areas, into the lower coal beds.

This specimen is also remarkably like a shell figured by Hall and Whitney in the Palæontology of Iowa (Vol. II., p. 29), with the name *Dolabra Alpina*. Unless better specimens demonstrate greater distinctness than at present appears, it is hard to see any reason why all these four

Meek's specimen was obtained in the
at Newark, Ohio.

MODIOMORPHA (?) PARVU

*Shell very small, not exceeding half a
erately convex. Hinge-line straight
the posterior end of the shell. Be
terior nearly terminal. Posterior
near base, gradually rounding into the basal
margin nearly straight and parallel or sub-parallel with
hinge-line. Faint indication of a rounded ridge extending
from the beak to the postero-basal margin. No teeth.
Ligament external.*

The specimens above described, and which I cannot refer
to any published species, seem to be abundant in the black
shales, as I have found ten specimens in the small collection
examined. Some of these are very minute, and many of
them are expanded, with both valves in apposition, as when
connected by the hinge. I have placed it provisionally in
Prof. Hall's genera, although I can find no hinge-tooth,
deeming it better to do so than to form a new one on so
slender a base.

GRAMMYSIA HANNIBALENSIS.

Shumard, Geol. Mo., 1855, p. 206.

The two specimens which I have referred to this species
are very imperfect, but in every respect, so far as preserved,
they resemble those which occur in the Cuyahoga shale of
northern Ohio.

This is the third species occurring in the west which I
have recognized among the specimens from Wilkes-Barré.

Prof. Shumard's type was found in the Lithographic
limestone, at Hannibal, Mo.

PALAEONEILO BEDFORDENSIS.

Meek, Pal. Ohio, vol. II.

A single specimen, well preserved, agrees so closely with

forms. The Wyoming Historical and Geological Society may be congratulated on having made so valuable and interesting a contribution to our knowledge of the coal Fauna of Eastern Pennsylvania, and I may be allowed to express the hope that they will continue their search, and that other societies, as well as individuals, residing in and near the coal fields, will be stimulated to "go and do likewise."

I have been unable to learn the exact horizon upon which these fossils occur, and cannot therefore refer them to any particular coal bed, but must content myself with saying that they were found in the coal measures near Wilkes-Barré.

The facts here given, and others that might be added, should prepare us to expect, as time passes and palæontology progresses, revelations yet more startling and uncanonical. Those who are disposed to set up any palæontological system or "canon" as a fetish, to be worshiped, a bed of Procrustes by which all must be measured, will find themselves in opposition to nature, in whose record few hard or fast lines or planes of demarkation occur. Such lines or planes are but so many proofs of our ignorance of the history of life, and the thoughtful student must expect to see, with advancing knowledge, the disappearance of every one of them, and to see it, not with regret, as many men witness the overthrow of a long cherished opinion, or the disruption of a long standing association, but with pleasure, and to hail it as an evidence that the gray twilight of the morning is giving place to the clearer light of day.

The course of life upon the earth has, so far as we can learn, been uninterrupted and continuous, without world-wide cataclysms or convulsions. Species have lived side by side, and have at length died out one by one, as they are now dying out. Other forms have taken their places, in

the same slow manner. In this way the life of the earth has been changed by imperceptible degrees. And when our History of Life is fully written, it will agree with the Course of Life. It will not be, as now, a number of disconnected volumes, the thread of whose story begins and ends in each, but a completed series, following on, in unbroken succession, the order of time, from the earliest terrestrial life to the present. Our imperfect palæontological record may be likened to a few chapters taken from Hume's great History of England and preserved, while all the rest was lost. The reader of these disjointed fragments would naturally wonder whence the characters came, of whom he read. They are not mentioned in the next preceding chapter which he possesses, nor do they appear to have existed in the next following. Coming in from the darkness of one unknown, they pass out into another equally mysterious and are lost. Specially characteristic of the age treated of in one chapter, the foregoing and succeeding chapters know them not. Read in this way, Julius Cæsar and Caswallon would seem like the characteristic fossils of the earliest or Archæan ages of British history, Alfred and Gudrum of another, William I., Odo, Edgar Atheling, and Matilda of a third, Cranmer and Wolsey, Raleigh, Drake and Burleigh, Cromwell, Hampden and Milton, Walpole and Marlborough, Pitt and Fox, would all become, as it were, the peculiar fossils of their respective ages or systems, and a history of England might in this way be constructed, consisting of a number of disjointed chapters, separated by gaps, of whose length the reader could form little idea.

This is not an exaggerated picture of the existing geological record. Few who have not worked in it, are aware how imperfect it is. The gaps probably exceed the chapters in length. And our practical knowledge of the course of life is of the same kind. The gradual addition of the missing chapters of Hume's History of England, in our sup-

posed case, would surely break down every "canon" of history based on their absence. The characteristic fossils of one age would often be found in the next preceding or following when these were discovered. Cranmer and Raleigh, Cromwell and Milton, would not be strictly limited to one short period. They would no longer be meteors on the record, but suns or stars—rising, culminating, and setting. They would no longer be "without father, without mother, and without descent, having neither beginning of days nor end of life," but each would show a time of appearing and a time of disappearing from view. No wholesale extinction would be met with, coinciding with the ends of the chapters; but one by one the historic characters would be found to die out, and one by one to be followed by others. And in the same way, when the palæontological record is complete, we may expect to see our present "systems" merged at both ends with those that precede and follow them; and every "canon" of palæontology, based on the absence of the missing chapters, will be overthrown. Characteristic species will scarcely exist. They will rise into higher, and come up from lower, horizons than those which they were supposed to characterize, and the hard, fast lines, now drawn, will be blurred. Instead of presenting to us a series of disconnected chapters, the history will show the commencement of species, in many cases deep down below their now known level, and their survival to others far above it. Each will overlap others at both ends, and sharply defined systems will become as unnatural as is now the Linnæan classification of plants. A few devotees of fetish "systems" may be shocked, but to the free and unprejudiced student of nature, especially from the evolutionary standpoint, all this will be welcome as new and beautiful truth.

REPORT ON THE WYOMING VALLEY CARBONIFEROUS LIMESTONE BEDS.

BY CHARLES A. ASHBURNER,

Geologist in Charge of the Anthracite Survey, and Corresponding Member of the Wyoming Historical and Geological Society; accompanied by a

DESCRIPTION OF THE FOSSILS CONTAINED IN THE BEDS,

BY ANGELO HEILPRIN,

Professor of Invertebrate Palæontology, Academy of Natural Sciences, Philadelphia.

PART I.

The occurrence of limestone-beds, interstratified with the shales, sandstones and coal-beds of the Coal Measures in Pennsylvania is not unusual, on the contrary they characterise all the bituminous measures in the State.

In the most recent coal measures, and the highest in the geological column, in Washington and Greene Counties, there occur sixteen beds of limestone, with an aggregate thickness of about 100 feet, contained in a section of coal measures having a total thickness of about 1000 feet.

In the Upper Productive Measures, which extend from the bottom of those just referred to, down to and including the Pittsburgh coal-beds, having an aggregate thickness of 500 feet, there occur five prominent limestone-beds having a thickness of 105 feet.

In the Lower Barren Measures of Beaver County, which extend from the bottom of the Pittsburgh coal-bed down to

NOTE.—Published by permission of J. P. Lesley, State Geologist, in advance of the publication of the Annual Report of the Progress of the Geological Survey for 1885.

the bottom of the Mahoning Sandstone, a distance of about 550 feet, there occur at least four well defined limestone-beds, the aggregate thickness of which is from 15 to 20 feet.

In the Lower Productive Measures, which contain the coal-beds mined extensively in many of the counties immediately back of the crest of the Allegheny Mountains, including the counties of Cambria, Clearfield, Jefferson, Elk, etc., there occur four easily recognized limestone-beds, having an aggregate thickness of from 15 to 20 feet, included in strata ranging from 300 to 400 feet in thickness. These coal measures extend from the Mahoning Sandstone down to the Pottsville Conglomerate.

In addition to these well defined limestone-beds numbering in all 29, with an aggregate thickness of about 240 feet, and included in a vertical column of bituminous coal measures 2400 feet thick, there occur a number of sporadic or irregularly deposited limestone-beds of variable thicknesses; the thickness of any one of which, however, seldom exceeds 3 or 4 feet.

A vertical bore-hole in the extreme southwestern corner of the State would pierce this entire column with the included limestones and bituminous coal-beds. It is highly improbable, however, that all of these 29 beds would be found existing as limestones at any one locality, since we have found by experience, that, while all the coal measure limestone horizons are remarkably persistent, yet in special areas the limestones thin down almost beyond recognition, or are entirely replaced by calcareous or argillaceous slate or shale and sometimes even by sandstones which contain little or no lime.

In the Coal Measures of the anthracite region, however, the occurrence of limestone-beds is rare, and the only locality where clearly defined and persistent beds of limestone have been located by the Geological Survey, is in the Wyoming Valley. These beds are of special interest to

geologists and palæontologists, on account of the number of fossil remains of water shells found in one of the most persistent of the beds, and which I have named the Mill Creek limestone-bed.

The existence of limestone in the Coal Measures of the Wyoming Valley, particularly in the vicinity of Wilkes-Barré, has been recognized for many years. A farmer on the farm of Judge Garrick Mallory is reported to have quarried limestone over 35 or 40 years ago, from an outcrop on the south side of Mill Creek below the mouth of Laurel Run, at a locality to be referred to later, and to have gathered loose pieces of stone from the surrounding fields; this limestone was burned in an old kiln in the immediate vicinity for lime, which was used principally as a fertilizer.

Dr. Charles F. Ingham and Mr. Chris. H. Scharar, prominent and active members of the Wyoming Historical and Geological Society, together with the late Mr. Harrison Wright, Secretary of the Society, and other members, have made an interesting collection of fossil specimens from an outcrop of one of these Wilkes-Barré limestone-beds, near the old Hollenback Dam across Mill Creek, at the head of a supply race of the now abandoned New York and Pennsylvania Canal. This limestone outcrop is on the Mill Creek bed.

Shortly after the commencement of the Anthracite Survey in 1880, I had the pleasure of examining this collection of fossils with Mr. Wright in the Society's rooms at Wilkes-Barré, and subsequently had an opportunity of visiting the locality on Mill Creek, from which these fossils were obtained, in company with both Mr. Wright and Dr. Ingham. The importance of having a determination made of the genera and species of these fossil forms, which were currently reported to be distinctly Permian, was early appreciated by the State Geologist, Professor Lesley. The fragmentary character of the specimens, together with the questionable

species of many of them, made it necessary that the fossils should be subjected to the scrutiny of an expert palæontologist.

The problems in practical geology which have occupied the attention of the members of the Survey corps, and which have had such an important bearing upon the economical development of the mineral resources of the State, have been so numerous, that the State appropriations made for the Survey have not permitted of the large number of fossil specimens which have been collected by Survey assistants, being studied and reported on by an expert palæontologist.

The great number of fossil specimens which have been collected, particularly in the central and north-western parts of the State, have been catalogued as to their locality and the lithological characteristics of the strata in which they were found; and in accordance with a special act of the Legislature, have been deposited with the Academy of Natural Sciences in Philadelphia. The Wilkes-Barré fossil specimens in the possession of the Wyoming Historical and Geological Society, and those privately held by Mr. Scharar, were placed at the disposal of the Survey in 1880 for examination. After a cursory examination of these specimens I was convinced that the species could not be satisfactorily determined, for the reasons already assigned, except by a specialist.

At the request of Professor Lesley, the specimens were examined at different times, by two of our field geologists who had given considerable time to the study of palæozoic fossils. Failure in one case to identify a number of the forms and in the other case to assign questionable names to a number of them, led finally to Professor Angelo Heilprin, professor of invertebrate palæontology at the Philadelphia Academy of Natural Sciences, being induced to undertake the examination. Professor Heilprin's time being almost

entirely taken up with work previously engaged upon, the progress made in the careful and systematic study of the Wilkes-Barré fossils was necessarily slow. The thoroughness with which Professor Heilprin pursued his work, and the unquestioned correctness of his conclusions, which, however, differ largely from the conclusions of others who have previously examined the specimens, should be a source of congratulation, both to the Society and the Survey, that no publications have been made prior to Professor Heilprin's determinations.

Those who have studied these fossils for a number of years have generally assigned them to the Permian formation. The occurrence of the Mill Creek limestone-bed, however, in which the fossils were found, inter-stratified with sandstones and shales included between two coal-beds of apparently undisputed Carboniferous Age, made the study of the fossils all the more interesting and their determination the more important.

The names assigned to the forms examined by Professor Heilprin, together with careful descriptions and references, make his paper (Part II.), which follows, complete in itself, and it is only necessary to refer to the geological relationships of the limestones from which they were taken.

A more extended and careful examination of the outcrops of the Mill Creek limestone will no doubt reveal other species not contained in the specimens which have so far been found and examined.

In order to aid future explorers to identify specimens, which they may find, photographs of the more distinct specimens were made, but failed to show with sufficient definition the details of the forms as they appear on the specimens themselves, so that independent drawings of the fossils, from the specimens and photographs combined, were made under Professor Heilprin's personal supervision. These drawings are reproduced on the accompanying page

plates. On account of the indistinctness of some of the specimens as represented on the page plates, and in order to permit students more easily to identify new specimens, other drawings, more complete in form, of the same specimens, were made and are inserted in the text.

The Mill Creek limestone-bed outcrops along the north side of Mill Creek near the breast of the old Hollenback dam and about midway between the River street bridge and a bridge of the Lehigh Valley Railroad which crosses the creek immediately at its mouth.

The limestone is siliceous, ferruginous and extremely hard and from 1 foot to 15 inches thick.

It occurs between the Prospect shaft anticlinal, which runs due west from Prospect shaft across the Susquehanna river, and the center of the Cemetery basin; the axis of the basin crosses River street about midway between Chestnut and Linden streets.

The dip of the strata, where the limestone outcrops, is toward the south. All the specimens of fossils obtained from this stratum were very much stained with oxide of iron.

When the lock of the Mill Creek Slack Water Navigation, on the south side of the creek and immediately opposite this limestone outcrop, was built, about 1865, a number of fossils were obtained, from the excavation made in the calcareous black slate at the foot of the lock.

The Mill Creek limestone outcrops again along the fence of the Hollenback Cemetery, facing the Susquehanna river on the west side of Mill Creek, about 65 feet south of the Lehigh Valley Railroad track.

On the road between Kingston and Plymouth and about half a mile north-east of the Boston breaker an outcrop of limestone occurs which is 2 feet thick. This outcrop Mr. Scharar believes to be on the Mill Creek limestone.

As nearly as can be made out the Mill Creek limestone occurs between 30 and 40 feet beneath the Joe Gibbs coal-

entirely taken up with work previously engaged upon, the progress made in the field and a summary study of the *W. longipennis* as it bears on it. The thoroughness with which Professor Huggan pursued his work, and the intellectual maturity of his conclusions, which, however different from the conclusions of others who have reported on the structure of the bee as a source of inspiration, are still in the *Species and the Survey*, that is, in the hands of the author, Dr. Oscar Huggan's contributions.

These two papers, however, are not a number of articles in general, but rather a series of formalities. The entire work, however, is a masterpiece, however it is not the case with the structure of the whole, but rather a series of articles of which the whole is a part. The study of the structure of the whole is a part of the whole, and the whole is a part of the whole.

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plates. In account of the great number of specimens in the collection, it was necessary to permit students to take out specimens for their drawings. In the winter of 1771, several plates were made and presented to the Society.

The first plate, which was presented, was a side view of the human eye, and was drawn by a young man and a woman, who were then in the hospital. A number of the plates were also presented to the Society, and were much admired.

The illustrations of the human eye, and some of the other parts of the body, were much admired.

It is remarkable that the first of these plates was drawn by a young man and a woman, who were then in the hospital. The plates were much admired, and were presented to the Society.

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bed. This coal-bed outcrops on either side of River street on both the Hollenback Cemetery bank and the Hospital bank, and near the end of Linden street. The dip of the bed is east of north from the Cemetery anticlinal into and toward the Cemetery basin. (See Mine Sheet, No. VIII., Atlas Northern Anthracite Field, Part 1).

In the Dorrance shaft, a little over a quarter of a mile southwest of this outcrop, what has been taken for the Joe Gibbs coal-bed was cut in the shaft, at a depth of 130 feet 7 inches. The dip of the strata in the Dorrance shaft from the top of the shaft down to the coal-bed, ranges from 39 to 37 degrees in a direction south. Although, at the time that the section of the Dorrance shaft was measured by Mr. Frank A. Hill, Assistant Geologist, the *representative* of the Mill Creek limestone was not noticed, it would, upon close examination, probably be found in the shaft at a depth of about 170 feet.

On the south-east bank of the canal 800 feet south-west of the mouth of Mill Creek and near the line separating the Hollenback and the Public Cemeteries, occurs an outcrop of a siliceous non-fossiliferous limestone much softer than the Mill Creek limestone. This bed I have named the Canal limestone, and it occurs about 30 feet stratigraphically below the Mill Creek bed. The Canal limestone is 2 feet thick.

Seventy feet south-west of this limestone outcrop occurs an interesting outcrop of dark gray slate, the top of which is about 10 feet below the Canal limestone-bed. Immediately after the original deposition, in the water basin of the Carboniferous Age, of the mud and silt which ultimately formed this slate-bed, the mud and silt were washed away either by a current in the depositing waters or by a stream which flowed over the mud bed. In the latter case the level of the water, which existed during the time that the mud and silt were deposited, must have been considerably lowered, by the water being withdrawn, in order to permit of the formation

of a creek bed. This *ancient cut* was subsequently filled with sand and mud, which replaced the mud and silt which had been washed away.

The Canal limestone-bed was cut in the Dorrance shaft and pieces of limestone could quite recently be found in the rock dump in the vicinity of the shaft. The slate passed through by the shaft between a depth of 207 feet 6 inches and 223 feet 6 inches is, without doubt, the representative of the slate found along the river bank, below the Canal limestone. An outcrop of the Mill Creek limestone was found by Mr. Scharar west of the dirt dump at the engine house, near the foot of the Dorrance breaker plane, and about midway between the Dorrance shaft and the Dorrance breaker. About 25 feet stratigraphically above the limestone outcrop an outcrop of the Joe Gibbs coal-bed is reported to have been found, the coal-bed being apparently about 1 foot thick.

About 10 feet above the top of the Conyngham shaft a limestone-bed was cut in an adjoining ditch. This limestone-bed is without doubt the representative of the Canal limestone.

On Main street north-east of Elm street, and very nearly on the line between the Conyngham and Prospect shafts, occurs an outcrop of the Mill Creek limestone, having a dip of 85 degrees due south; the outcrop is located on the crest of the Cemetery anticlinal, and a number of fossils were obtained from the limestone at this point.

About 150 feet nearly north-east from this latter outcrop and on the top of a small hill, the Mill Creek limestone outcrops on the north dip. This was the point from which was quarried most of the lime before mentioned.

The Mill Creek limestone is exposed on the west side of River street between the Mill Creek bridge and the bridge over the railroad at the foot of the Prospect culm-bank. This limestone is also exposed in the Lehigh Valley Railroad cut west of the Prospect breaker.

In this railroad cut the Canal limestone is exposed. Ninety feet below the Canal limestone at this point, the River coal-bed, which is the representative of the Rock bed struck in the Dorrance shaft at a depth of 325 feet 9 inches, occurs. Twenty-five feet stratigraphically below this coal-bed occurs a third limestone.

In addition to these three limestone beds two others are reported, but I did not find their outcrops.

In the Dundee shaft on the south side of the Susquehanna river about a mile and a half east of Nanticoke, fossils were obtained in a black slate stratum extending from a depth of 281 feet 3 inches to 314 feet 9 inches. The exact position of this slate-bed in the Coal Measures is not known, since the Dundee shaft section has never been satisfactorily compared with other sections. Mr. Hill is disposed to believe that the Dundee fossiliferous slate is about 600 feet above the Hillman coal-bed.

In a cut on the Lehigh Valley Railroad south-west of the Hillman colliery breaker there is exposed 3 feet of a tough siliceous limestone which occurs 10 feet above the Hillman coal-bed. This latter limestone has been by some considered to be the same as the Mill Creek limestone-bed, there is, however, nearly 500 feet of strata between the two limestones. No fossils have been found in the Hillman limestone.

The relative position, of these limestone-beds, in a general section of the Coal Measures of the Wyoming Valley, is shown in the following section, compiled from the Dorrance shaft, down to the bottom of the Rock coal-bed; from thence from the Conyngham shaft section, down to the bottom of the Baltimore coal-bed; from thence from the record of the Baltimore bore-hole down to the Red Ash coal-bed; and from thence, from the Red Ash bore-hole to the bottom of the section.

	<i>Feet</i>	<i>Inches.</i>
1. Slate	51	5
2. Coal and dirt	2	10
3. Slate	7	2
4. Sandstone, soft	2	1
5. Slate	21	1
6. Sandstone	5	5
7. Slate	3	4
8. Sandstone, hard	11	1
9. Slate	1	10
10. Joe Gibbs coal-bed	1	10
11. Sandstone	30	0
12. MILL CREEK LIMESTONE	1	0
13. Sandstone	25	0
14. CANAL LIMESTONE	2	0
15. Slate	14	0
16. Coal	1	10
17. Sandstone	11	0
18. Slate and sandstone	7	5
19. Sandstone	13	1
20. Slate and fire clay*	2	2
21. Sandstone	39	4
22. Slate	7	0
23. Rock or K. coal-bed	7	2
24. Slate	3	2
25. Coal	2	6
26. Slate and sandstone	25	0
27. LIMESTONE	2†	
28. Conglomerate, sandstone and slate	33	0
29. Abbott, 7 foot or J. coal-bed	5	0
30. Sandstone	51	0
31. Conglomerate	10	0
32. Sandstone	15	0
33. Bowkley or I. coal-bed	5	0
34. Slate	17	0
35. Conglomerate	20†	

* This stratum is probably calcareous and may in some cases be the limestone-bed representative of one of the limestone-beds whose outcrop I did not find.

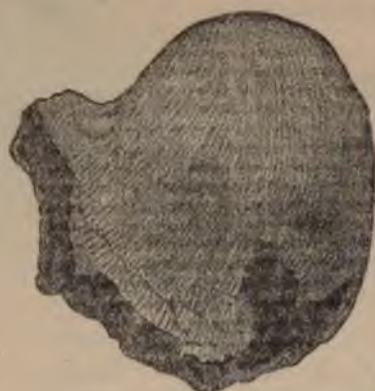
† More or less.

	<i>Feet</i>	<i>Inches.</i>
36. HILLMAN LIMESTONE	3	0
37. Slate	10	0
38. Hillman or H. coal-bed	16	0
39. Conglomerate and sandstone	150	0
40. G. coal-bed	3	0
41. Sandstone	57	0
42. 5 Foot or F. coal-bed	3	0
43. Fire-clay	12	0
44. Sandstone	116	0
45. Baltimore, E. or Mammoth coal- bed	16	0
46. Sandstone	106	0
47. Coal-bed	2	0
48. Sandstone	26	0
49. Coal-bed	1	0
50. Sandstone	87	0
51. Coal-bed D	4	0
52. Slate	6	0
53. Coal-bed	1	0
54. Slate	21	0
55. Ross or C. coal-bed	7	0
56. Sandstone	28	0
57. Red Ash or B. coal-bed	17	0
58. Slate	2	0
59. Coal bed A.	2	0
60. Slate and sandstone	11	0
61. Conglomerate, Pottsville No. XII.	96	0
62. Mauch Chunk Red Shale No. XI.	—	—
Total thickness of measures .	1260	00

PART II.

Although some doubt has been entertained by certain geologists and palæontologists as to the age of the deposits represented by the fossils in question, whether Upper Carboniferous or Permian, there is, in my opinion, not the remotest foundation for the existence of such doubt. Apart from all stratigraphical evidence, which appears to be absolutely confirmatory of the evidence presented by palæontology, we have, in the numerous and varied organic remains, the most indisputable demonstration of the Carboniferous formation. By far the greater number of the fossils—not impossibly all of them—have already been described from the equivalent, or nearly equivalent, deposits of the States west of Pennsylvania, concerning whose age there appears to be no question. But even if there were such a question in some instances it would not effect the present issue, since the Wilkes-Barré fossils unequivocally represent Carboniferous species. Not a single distinctively Permian fossil occurs in the collection, although the *Schizodus* forms may perhaps with propriety be considered to represent as well a newer as an older horizon. The fragments of Trilobites (*Phillipsia*) are in themselves sufficient to dispel any doubt that might arise as to the stratigraphy of the region, inasmuch as we know of no members of this group of organisms surviving the Coal period, unless they be the forms described by Shumard from the very doubtfully placed Permian deposits of the Sierra Madre. At the same time it is by no means impossible, or even very improbable, that indisputable Permian Trilobites may yet be discovered.

The fossils occur in a very ferruginous earthy limestone of a rusty-yellow color, and are mainly in the nature of casts and impressions. They are the property of the Wyoming Historical and Geological Society of Wilkes-Barré, and of Mr. Chris. H. Scharar, of Scranton, through whose kindness



1 PRODUCTUS CORA.



2 ATHYRIS SUBQUADRATA.



1A PRODUCTUS CORA.



3 CHONETES MILLEPUNCTATA.



4A PRODUCTUS NEBRASCENSIS



4 PRODUCTUS NEBRASCENSIS



4B PRODUCTUS NEBRASCENSIS

they have been placed in the hands of the Geological Survey for examination. In addition to these a number of other fossils, from the black shales of the same region, were sent on by the Wilkes-Barré Society for determination. The species of the latter specimens are in most cases only doubtfully determined. They are from the Upper Coal Measures :

Modiola minor, Lea.
Modiomorpha sp. (?) (near to *M. alta*, Conrad.)
Modiomorpha sp. (?) (near to *M. complanata*, Hall.)
Edmondia Burlingtonensis, White. (?)
Palæoneilo Bedfordensis, Meek.
Aviculopecten sp. (?)
Pterinopecten sp. (?)
Grammysia Hamiltonensis, Shumard.
Grammysia sp. (?) (fig. 8)
Schizodus (near to *S. quadrangularis*, Hall).
Schizodus sp. (?)
Solenomya anodontoides, Meek.
Platyceras acutirostris, Hall.
Bellerophon percarinatus, Conrad.
Bellerophon sublaevis, Hall. (?)

The following list comprises most of the fossils from the Mill Creek limestone bed :

BRACHIOPODA.

Discina.

DISCINA CONVEXA, *Shumard*. (*Fig. 18.*)



18 *DISCINA CONVEXA.*

Trans. St. Louis Acad. I., p. 221 (1858).

White, Geol. Rept. Indiana, 1883, p. 121, pl. 25, fig. 9.

Two impressions of *Discinae* occur in the rock, one of which is unmistakably referable to the above species. It measures about an inch in the basal diameter, and somewhat more than a third of an inch in the apical height of the convex valve. The con-

centric lines are well indicated. The impression of the second specimen is not as clearly defined, and may possibly represent *Discina Newberryi*, which, however, does not appear to differ much, if at all, from *D. convexa*.

Chonetes.

CHONETES (?) MILLEPUNCTATA, *Meek and Worthen.* (Fig. 3.)

Meek and Worthen, Proc. Ac. Nat. Sci. Phila., 1870, p. 35.

Meek and Worthen, Geol. Surv. Illinois V., p. 566, pl. 25, fig. 3.

Several determinable impressions of this remarkable brachiopod, one of which, measuring two and a half inches across, would indicate in the perfect specimen an expanse of about four inches. Punctae very fine, and exceedingly numerous.

Productus.

PRODUCTUS CORA, *D'Orbigny.* (Figs 1 and 1a.)

White, Geol. Rept. Indiana, 1883, p. 126, pl. 26., figs. 1, 2, & 3.

This species is represented by a large fragment (upper moiety of valve), and by a nearly perfect convex or vertical valve, in which the distinctive characters of the species—the fine longitudinal lines, without medial impression, and broad corrugated auriculation—are clearly exhibited. Umbonal height somewhat more than two inches.

PRODUCTUS NEBRASCENSIS?, *Owen, Figs. 4, 4a, 4b, and 4c.*



Owen, Geol. Rept. Wisc., Iowa, and Minn., p. 584, pl. V, fig. 3. White, Geol. Rept. Indiana, p. 122, pl. 24, figs. 7, 8 and 9.

4c PRODUCTUS NEBRASCENSIS?

There are several fairly well-preserved specimens of a very convex, and strongly scabicate, Produc-

tus, whose nearest relationship, among American forms, appears to be with *P. Nebrascensis*. It seems to differ from this species, however, in the more prominent pustulation of the dorsal valve, a character in which it agrees more nearly with the common European *P. pustulosus* (Phillips). This one distinctive feature is probably of not more than varietal importance, and I accordingly prefer to place the species under *P. Nebrascensis*.

Athyris.

ATHYRIS SUBQUADRATA, Hall. (Fig. 2.)

Hall, Iowa Rept. vol. I. part 2, p. 703. pl. XXVII., fig. 2.

Several more or less perfect casts.

Spirifer.

SPIRIFER LINEATUS?, Martin.

Very doubtful.

ACEPHALA.

Aviculopecten.

AVICULOPECTEN WINCHELLI, Meek. (Figs. 6, 6a, and 6b.)



Meek, Ohio Geol. Rept. II., p. 296, pl. 15, fig. 5.

Two more or less perfect impressions.

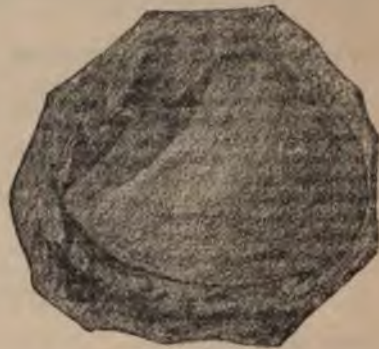
68 AVICULOPECTEN WINCHELLI.



5 AVICULOPECTEN OCCIDENTALIS.



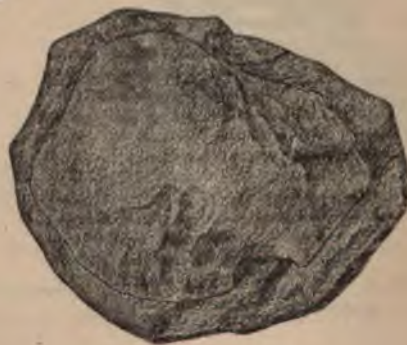
6 AVICULOPECTEN WINCHELLI.



7 SCHIZODUS WHEELERI.



8 GRAMMYSIA (SP?)



9 SCHIZODUS CUREATUS.

AVICULOPECTEN OCCIDENTALIS, *Shumard*. (Figs. 5 and 5a.)

5A AVICULOPECTEN OCCIDENTALIS.

Shumard, 1855, Swallow, Geol. Rept. Missouri, p. 207. pl. C. fig. 18.

White, Geol. Rept. Indiana, 1883, p. 143. pl. 28, fig. 3.

Eumicrotis.EUMICROTIS HAWNI, *Meek & Hayden*.

Trans. Albany Inst. IV. (1858).

Meek and Worthen, Geol. Surv. Ill., II., p. 338, pl. 27, figs. 12, 13 and 14.

An obscure impression, which may be that of this species, but very doubtful.

Monopteria.MONOPTERIA (PTERINEA) GIBBOSA, *Meek and Worthen*. (Figs. 11 and 11a.)

Meek and Worthen, Proc. Chicago Acad. Nat. Sci., 1866, p. 20.

Meek and Worthen, Geol. Surv. Ill., II., p. 340, pl. 27, fig. 11.

White, Geol. Rept. Indiana, 1883, p. 139, pl. 30, figs. 11 and 12.

One specimen, which very clearly exhibits the distinctive features of the species. The species appears to be very intimately related to *Monopteria auricula* of Stevens (*Am. Journ. Science XXV., p. 265*), and to *Gervillia longispina*, Cox (*Kentucky Rept. III., p. 568*).



11A MONOPTERIA GIBBOSA.



10 ALLORISMA SUBCUNEATA.



12 PINNA PERACUTA.



8A AVICULOPECTEN WINCHELLI.



11 MONOPTERIA GIBBOSA.

Pinna.

PINNA PERACUTA, *Shumard.*

(Figs. 12 and 12a.)

Shumard, Trans. St. Louis Acad.,
I., p. 214 (1858.)

White, Geol. Rept. Indiana,
1883, p. 145, pl. 28, figs. 1 and 2.

Several impressions and casts, one of the latter fragments measuring five inches in length, and two and a half in greatest width.



15a MYALINA SUBQUADRATA.

Myalina.

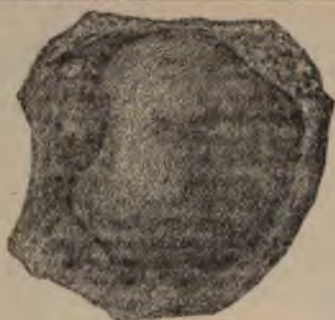
MYALINA SUBQUADRATA, *Shumard.* (Figs. 15 and 15a.)

Swallow, Geol. Surv. Missouri,
p. 207, pl. C, fig 17.

Several fragmentary casts and impressions.



12a PINNA PERACUTA.



7A SCHIZODUS WHEELERI.



14 PHILLIPSIA SANGAMONENSIS.



15 MYALINA SUBQUADRATA.



16 MACROCHEILUS PRIMIGENIUS.



17 ORTHONOTA ?

*Macrodon.*MACRODON OBSOLETUS, *Meek.* (*Fig. 19.*)

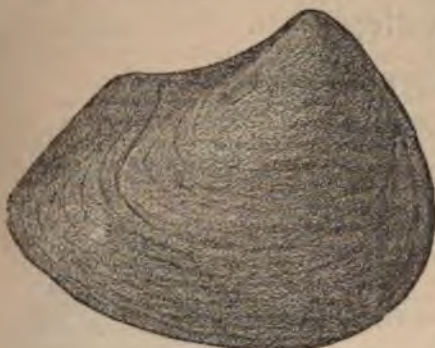
Meek, Rept. Regents Univ. W. Virginia, 1871.
Meek, Ohio Rept. Paleontology II., p. 334, pl.
19, fig. 9.



19 MACRODON OBSOLETUS.

*Schizodus.*SCHIZODUS CUNEATUS(?) *Meek.* (*Figs. 9 and 9a.*)

Ohio Rept. Paleontology II., p. 336, pl.
20, fig. 7.



9a SCHIZODUS CUNEATUS.

A cast of a large Schizodus, measuring two inches in length, may possibly belong to this species; the absolute specific determination is somewhat doubtful, however.

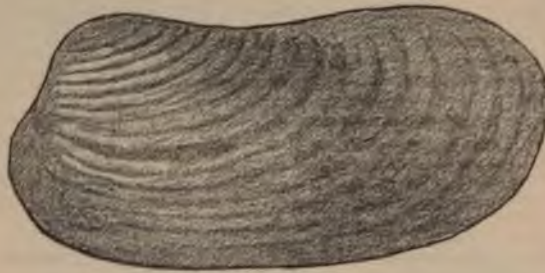
SCHIZODUS WHEELERI, *Swallow.* (*Figs. 7 and 7a.*)

Swallow, Trans. St. Louis Acad. II., p. 96 (1862).
White, Geol. Rept. Indiana, 1883, pl. 30, figs. 3, 4 and 5.

Several nearly perfect casts.

Allorisma.

ALLORISMA SUBCUNEATA, Meek and Hayden. (Figs. 10 and 10a.)



10a ALLORISMA SUBCUNEATA.

Meek and
Hayden, *Pal
Upper Mis-
souri*, 1864,
p. 37, pl. I.,
fig. 10.

White,
*Geol. Rept.
Indiana*,
1883, p. 148,
pl. 31, figs.
1, 2 and 3.

Grammysia.

Undetermined casts and impressions.

GASTEROPODA.

Macrocheilus.

MACROCHEILUS PRIMIGENIUS, Conrad. (Figs. 16 and 16a.)

Conrad, *Trans. Geol. Soc. Pennsylv.* 1835,
p. 267, pl. 12, fig. 2.

Conrad, *Iowa Report*, I., p. 720.

One fairly defined cast.



16a MACROCHEILUS PRIMIGENIUS

*Bellerophon.*BELLEROPHON NODOCARINATUS(?) *Hall.* (*Fig. 13a.*)*Hall, Iowa Rept. part II., p. 723, pl. XXIX., fig. 15, a, b, and c.*BELLEROPHON CRASSUS (VAR.) (?) *Meek and Worthen.**Meek and Worthen, Proc. Ac. Nat. Sci. Phil'a. 1860, p. 458.*

The identification of both of these species is somewhat doubtful.



12 BELLEROPHON NODOCARINATUS

CEPHALOPODA.

Nautilus sp. (?)

Orthoceras sp. (?)

Both genera represented by several ill-defined casts and impressions.

TRILOBITA.

*Phillipsia.*PHILLIPSIA SANGAMOENSIS, *Meek and Worthen.* (*Figs. 14 and 14a.*)

14a PHILLIPSIA SANGAMOENSIS.

*Meek and Worthen, Proc. Ac. Nat. Sci. Phila. 1865, p. 271.**Meek and Worthen, Geol. Surv. Illinois, V p. 615, pl. 32, fig. 4.*

Represented by two pygidia.



OBITUARIES.

The Historiographer, Geo. B. Kulp, Esq., presented the following biographical notices of deceased members at the several meetings :

STEWART PEARCE.

[Read before the Society, Dec. 12, 1884.]

The ancestors of Stewart Pearce were protestant soldiers, who entered Ireland from England with the army of Cromwell in 1649. Receiving confiscated lands in part payment for military services, a portion of the family settled near Enniskillen, in the province of Ulster. In 1690 his great-great-grandfather, in company with four brothers, entered the army of William III., and fought shoulder to shoulder with Huguenots and English blues against the catholic King James II. at the celebrated battle of the Boyne.

Edward Pearce, the great-grandfather of Stewart Pearce, was born in Enniskillen, August 6, 1701, and married Frances Brassington, of Dublin. They had three children born in Ireland, with which little family he sailed for America in May, 1737. Two of the children died of small-pox on the passage. Mr. Pearce arrived in Philadelphia in August, having been thirteen weeks in crossing the ocean.

Cromwell, the remaining child, was born in December, 1732, and was nearly five years old on his arrival in Pennsylvania. The family remained in Philadelphia until the spring of 1738, when they removed to the neighborhood of St. David's church in Radnor township, Chester county, Penn'a.

Edward Pearce died March 6, 1777, and was buried at St. David's church, Radnor.

Cromwell Pearce, the son of Edward Pearce, was commissioned May 8, 1758, lieutenant in the battalion of Penn-

sylvania regiment of foot, and served under General Forbès, the successor of General Braddock. He married Margaret, daughter of John and Margaret Boggs, who owned a large tract of land in Willistown. Cromwell Pearce was appointed May 6, 1777, Major, and May 20, 1779, Colonel of the 5th battalion of Chester county militia. The extent of his services is not known beyond the fact that he went on a tour of duty to Amboy, N. J. On May 1, 1781, he was commissioned Major of the second battalion of Chester county militia. After his father's death he became the owner of the farm in Willistown, whereon he passed the remainder of his days, and died August 4, 1794. His wife died December 28, 1818, aged seventy-eight years. Marmaduke Pearce, the father of Stewart Pearce, was the sixth son of Cromwell Pearce, and was born at Paoli, Willistown township, Chester county, Penn'a, August 18, 1776. He studied for the ministry and was licensed to preach in the year 1811. He was a man of attainments and sound practical sense, and met with much success in his chosen profession, which he pursued with untiring zeal until his death, Aug. 11, 1852. Three sons survived him, Rev. Cromwell Pearce, since dec'd, Stewart, the subject of this sketch, and Rev. John J. Pearce, of Lewistown, Penn'a.

The mother of Stewart Pearce was Hannah Stewart *nee* Jameson. She was a descendant of John Jameson, who, in the year 1704, left the highlands of Scotland and sought a new home in Ireland. He settled in the town of Omagh, in the county of Tyrone, and carried on the manufacture of linen. John Jameson, son of John Jameson, the elder, emigrated to America in 1718, and landed in Boston with two sons, William and Robert. In 1719 he removed to Voluntown, Windham county, Conn. Here he purchased and settled upon a large tract of land, and here he, his wife, and son William, who died unmarried, are buried. Robert Jameson was but four years old when his parents came to Amer-

ica. In 1747 he married Agnes Dixon, who was also born in Ireland, and came to this country when quite young, with her father, Robert Dixon. He was one of the committee of the Susquehanna Land Company. Robert Jameson and his father-in-law, Robert Dixon, were among the original petitioners to the Connecticut Legislature in 1753, asking for the organization of the Connecticut Susquehanna Land Company. Robert Jameson came to Wyoming in 1776. He died at Hanover, May 1, 1786, and was buried in the old grave-yard on Hanover Green. John Jameson, son of Robert, and grandfather of Stewart Pearce, preceded his father to Wyoming and arrived in 1772. He located himself on a tract of land in Hanover township, on the public road leading from Wilkes-Barré to Nanticoke. In 1776, he married Abigail, daughter of Major Prince Alden, who had emigrated to Wyoming and settled on the property lately owned by the late Col. Washington Lee, at Nanticoke. Major Alden was the third in descent from John Alden, who landed on Plymouth Rock, in 1620. In 1776 John Jameson enlisted in a company under Captain Strong, which served in the Continental army. He was also present in Plunkett's battle in December, 1775, at or near Nanticoke dam. He was in the battle and massacre of Wyoming, July 3, 1778, and barely escaped with his life. He was slain by the Indians July 8, 1782, while on his way, in company with a younger brother and a neighbor, from his home to Wilkes-Barré. Mrs. Hannah Pearce, the mother of Stewart Pearce, was born about two months after the death of her father, John Jameson. She married in 1779, James Stewart, son of Captain Lazarus Stewart. James Stewart died in 1808. In 1819 his widow married Rev. Marmaduke Pearce. She died in Wilkes-Barré, Oct. 21, 1859. Stewart Pearce was born in the village of Kingston, Luzerne county, Penn'a, Nov. 26, 1820. In 1834 he was sent to the Seminary at Cazenovia, N. Y., and in 1839, entered the Franklin Academy,

at Harford, Susquehanna county, Penn'a. In 1840 he commenced the study of the law, in the office of Samuel F. Headley, in Berwick, but soon thereafter his sight becoming impaired he gave up the law, and devoted his energies to the business of farming, on his father's farm in Columbia county. In the spring of 1846 he removed with his father to Berwick, and in the fall of the same year was elected a member of the House of Representatives of Pennsylvania. He was re-elected in 1847, and again in 1848. He was appointed collector of tolls on the Pennsylvania Canal & Railroad, at Columbia, Penn'a, but his health having failed he resigned the position in 1852. From 1855 until the time of his death he was a resident of Wilkes-Barré. During this period, his eyesight having further failed, he was unable to read; he could write, however, with a lead pencil. He was a charter member of the Wyoming Historical and Geological Society. Mr. Pearce was a Democrat in politics until 1856, when he joined the Republican party, and became one of its most active leaders in this county. He was chairman of the county committee of that party in 1863 and 1864, and during the late war was prominent as a writer for the newspapers, making public speeches and doing all in his power for the restoration of the Union. He was postmaster of Wilkes-Barré during General Grant's administration from 1869 to 1877. In 1860 he published his "Annals of Luzerne County; a Record of Interesting Events, Traditions and Anecdotes, from the First Settlement in Wyoming Valley to 1860." In 1866 he published a second edition with notes, corrections and valuable additions. This book, is a standard work, well written, and a valuable addition to the literature of the valley. Lyman C. Draper, LL. D., has justly called Mr. Pearce a "careful and conscientious historian." Mr. Pearce never married. He died in this city, Friday, October 13, 1882. In his will he bequeathed various sums to our home charities, such as the Wilkes-

Barre Hospital; Wilkes-Barre Home for Friendless Children; Wilkes-Barre Infants' Home; and the Luzerne County Bible Society. To our Society he gave his valuable historical library. He was a man of remarkable memory, ready wit, and keen, reasoning powers.

Of the historians of the valley, none brought to their work a greater zeal, or a more conscientious purpose to discover and record the truth.

ARNOLD HENRY GUYOT.

[Read before the Society, Feb. 11, 1885.]

Arnold Henry Guyot, L. L. D., Blair Professor of Geology and Physical Geography, and senior professor of Princeton College, elected an honorary member of this society in 1859, born near Neufchatel, in Switzerland, September 28, 1807, died at his residence in Princeton, N. J., February 8, 1884.

DANIEL STREBEIGH BENNET.

Daniel Strebeigh Bennet, an attorney at law of this city, and quartermaster of the third brigade of the National Guard of Pennsylvania, elected resident member of this society in 1880, born at Fairfield, near Williamsport, Penn'a, September 3, 1853, died at his residence in this city, September 16, 1884.

THOMPSON DERR.

Thompson Derr, a prominent man in insurance circles, and an insurance agent, was born in Durham township, Bucks county, Penn'a, January 16, 1834; was elected a resident member of this society in 1866, died in Wilkes-Barré, Penn'a, February 8, 1885.

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